The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXI, No. 19 CHICAGO, ILLINOIS NOVEMBER 8, 1913

NEURASTHENIA AN INCREASED SUSCEPTIBILITY TO EMOTION *

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The neurasthenic is always with us, appealing to our sympathy, knowledge and skill to restore him to comfort and usefulness. His sufferings, however he may exaggerate and distort them, are only too real; his disability is often most serious. We are eager to help him, but his symptoms do not yield to the treatment which would relieve similar symptoms due to other causes, while the indications for general treatment are often vague and uncertain. If we knew the fundamental nature of neurasthenia and could direct all our treatment toward its correction, surely we could do better.

For more than twenty years a large proportion of my daily work has been with neurasthenic patients. The aggregate number of cases has been large, certainly more than a thousand, and each case has been carefully examined and studied, and the results have been recorded, in an effort to ascertain the causes and true nature of the disorder. I have not used the method of psychanalysis but I have made a special effort to encourage and assist each patient in telling his hidden causes of worry and fear. I wish to state certain conclusions from my experience which seem to me to be of great practical importance in making treatment more definite and more successful.

As the term "neurasthenia" has been used to denote nervous conditions accompanying very different diseases, it is necessary to define the class of cases to be discussed. Nervousness that is incidental to organic disease of the nervous system, or to an infection such as influenza, typhoid fever or tuberculosis, or to painful local disease, such as gastric ulcer or cystitis, should not be described as neurasthenia; there may be a neurasthenic condition but its importance is secondary to that of the major disease. If after the original disease is cured, however, a neurasthenic condition persists, it is to be regarded as a true neurasthenia. On the other hand, various effects of true neurasthenia must not be mistaken for the original cause. Disorders of digestion, of circulation, of vision, of micturition and of the sexual functions are often mistaken, by both patient and physician, for the original cause, when they are really only a part of the consequences of neurasthenia. A delimitation is also necessary on the side of the purely functional nervous diseases. The patient with incipient melancholia, paranoia or dementia praecox is often superficially neurasthenic, but the underlying condition is different in kind. Hysteric patients are generally neurasthenic, but their emotional crises are of a different type and they suffer also from suggestibility and restriction of the field of consciousness, causing paralyses, spasms, anesthesias or other stigmata not found in neurasthenia.

Neurasthenia, then, is a functional nervous disorder, not dependent on organic disease of any kind, not amounting to insanity, not hysteria, manifested by irritability, early onset of mental fatigue and a great variety of unpleasant and to the patient alarming sensations, chiefly in the head but also in various other parts of the body.

When we study these cases as to etiology, the idea of fatigue, especially mental fatigue, is forced on us. The patient's own story is usually clear on this point. Overwork in college, perhaps two years in one, or a full schedule of studies along with the struggle for self-support, is a common explanation. A merchant or professional man has worked long hours for years without a vacation; a mother has nursed an invalid child while carrying the burden of household cares, and so on. In a smaller proportion of cases without history of previous overwork, an illness, injury or mental shock seems to have caused the neurasthenic condition; but even here the condition, once established, is described as chronic fatigue; the patient has no relish for his work, cannot stand exertion, is always tired. Indeed, the existence and causal relation of fatigue generally appear so obvious as almost to justify the banal prescription, "You must drop everything and get away" (in Colorado it is "You must drop everything and get to a lower altitude"), a prescription by no means easy to take, although easily given, happily freeing the prescriber from troublesome care or the admission that there is anything beyond his scope.

A critical examination of the facts, however, will soon show that work and its consequent fatigue cannot be the fundamental factors in causation. When circumstances are favorable, the neurasthenic can often do a large amount of physical or purely intellectual work and actually be the better for it. Dr. Hall of Marblehead, Mass., successfully carries on a work cure for neurasthenics. Moreover, patients are commonly worse on Sundays or other holidays, and are often worse in the morning than in the evening. Of those who completely give up work only a small number seem to profit. Some are temporarily improved but relapse on returning to the usual conditions; many grow worse and worse the less work they do. Even rigorous rest in seclusion often fails and is sure to fail unless the doctor and nurse do far more than relieve the patient of exertion by ministering to his physical wants. The average neurasthenic does not get rested whether he

* Chairman's Address before the Section on Nervous and Mental Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

works or is idle. Why not? Because his feelings of exhaustion were originally caused and are still maintained, not by work, but by emotion.

The essential fact about neurasthenics is that they suffer a far greater number of emotional disturbances of the harmful kind than average persons in similar situations. They are incessantly being annoyed, grieved and frightened. It is not that their emotions are extraordinarily intense; their greatest anger is mild compared with the savage rage of an alcoholic; their depression is not to be compared with the despair of melancholia; they are incapable of the passionate contortions of major hysteria; but innumerable, constantly recurring occasions, which would be of trifling moment to a normal individual, cause reactions of anger, fear or grief such as would be appropriate only to the few occasions which are really significant. The condition is like anaphylaxis. That part of the cortex in which emotional processes start has become sensitized so that perceptions or ideas, such as might occur in the normal brain with little or even no appreciable effect, excite a storm of outgoing currents to disturb and disorder all the functions of the body. This oversensitive condition of the emotional apparatus may also be described in the technical language of physiology as a lowering of the emotional threshold.

JAMES-LANGE THEORY OF EMOTIONS

The significance of this aspect of neurasthenia becomes clear when it is viewed in the light of the James-Lange theory of the emotions. Observation and reflection extending over many years have convinced me that, for the practical neurologist, it is a true theory, although the pure psychologist may be doubtful about some of its implications. According to this theory every emotion consists of three processes whose order is invariable.

1. The occurrence of the exciting perception or idea.
2. An action of the brain, excited by this perception or idea, which sends efferent nerve-currents to the organs throughout the body, causing a change in the action of the organs.
3. The return of sensory nerve-currents from the disturbed organs to the sensory areas of the cortex, causing a change in the sensations and a consequent perception of the bodily disturbance.

Take as a simple example the case of a person startled by sudden noise. The first stage is simply the perception of the sound; the second is the jerking of voluntary muscles, the involuntary cry, the sudden catch in the breath, and the jump of the heart; the third is the disagreeable sensations caused by these sudden changes in the body. In such cases the bodily effects and consequent unpleasant sensations are generally greatly in excess of what one would expect from the loudness of the sound. They may sometimes be useful in enabling one to escape from a sudden danger, but are generally quite useless and their exhausting effect is far greater, the duration of activity being considered, than that of any kind of work whatever. So it is with the various phases of anger, grief and fear in the neurasthenic. The exciting idea is generally not such as one would expect to have a marked effect, but it starts an emotional process whose second stage involves, directly or indirectly, every muscle-fiber and gland in the body, changing motion, respiration, circulation and secretion, while the third stage includes bad feelings which further alarm and depress. Biologically this disproportion of effect to apparent cause is explainable by the fact that the emotions are largely identical with the preservative and protective instincts, for which there is a predeveloped inherited mechanism, which normally in case of danger causes prompt and vigorous action toward escape, defense or attack, without waiting for reason to give its sanction. In modern life this mechanism is seldom useful, while its needless action, if frequently repeated, is always harmful. It is this primitive, inherited, powerful reflex mechanism which has become oversensitive and excessively active in neurasthenia.

NEURASTHENIA AND PSYCHASTHENIA

Apply these considerations to a typical case of neurasthenia and it is readily explained. Work may have something to do with it, for all work involves fatigue, and it is not to be denied that normal fatigue due to normal work tends to lower the threshold of the undesirable emotions and to inhibit the desirable ones. The effect of work alone is normally slight, however, and is quickly recovered from; a night's, or at most a few days' rest would insure recovery if the work were the only unfavorable factor; but along with the work are occasions for vexation, anxiety and alarm. The neurasthenic through heredity, disease or traumatism has a brain which reacts excessively to these occasions; to the moderate fatigue of useful labor is added the great fatigue of useless emotion; the neurons whose efferent impulses disturb the body become more sensitive, lowering the threshold still further; thus the daily number of emotional disturbances increases. The sensory centers of the cortex in which the emotion ends become more and more fatigued, so the resulting sensations become more and more unpleasant. This change in sensations, especially in those of the head, causes a feeling of changed personality which is strongly suggestive of mental disease, and thus the earlier fears of heart-disease, apoplexy or what not become relatively unimportant before the terrible fear of insanity.

Psychasthenia is also a lowering of the emotional threshold. Its difference from ordinary neurasthenia is in the nature of the exciting cause of the emotional disturbance. In ordinary neurasthenia the exciting causes are the exceedingly frequent occasions of grief, fear and anger, which are perfectly real but so slight that only the abnormally sensitive brain is harmfully affected by them. In psychasthenia the exciting cause of disturbance is merely the mental representation of a cause for emotion which for the patient does not exist at all, but which would be amply sufficient to affect a normal brain if it did exist.

Thus a psychasthenic girl passing a house sees some glasses of jelly exposed on a window-sill. The thought comes, "Some one might put poison into that jelly; what if I should do it?" The mere thought provokes such a feeling of horror that she goes home crying. A few weeks later, she takes part in a cooking-school exercise and is vividly reminded of the ideas concerning the jelly, but keeps control until one of the children who has eaten what she helped to prepare begins to complain of illness. Then the mere idea, which she knows to be utterly false, of having put poison into the food provokes a violent outburst of grief. All normal persons have some emotional reaction to mental representations which they know to be purely imaginary, as in reading fiction or seeing a play. Hamlet comments beautifully on the tears of the player who has been reciting the anguish of Hecuba:

When she saw Pyrrhus make malicious sport,
In mincing with his sword her husband's limbs, . . .:

Is it not monstrous, that this player here,
But in a fiction, in a dream of passion,
Could force his soul so to his own conceit
That from her working, all his visage wann'd;
Tears in his eyes, distraction in's aspect,
A broken voice, and his whole function suiting
With forms to his conceit? And all for nothing!
For Hecuba!
What's Hecuba to him, or he to Hecuba,
That he should weep for her?

With normal persons, however, the knowledge that the conceit is imaginary always limits the intensity and duration of the emotional reaction. The theater-goer, the novel-reader, the day-dreamer may really tremble, shed real tears, or contract his muscles in righteous anger, but he restrains himself and quickly recovers emotional equilibrium. Not so the psychasthenic. His emotional centers are so oversensitive that a purely accidental image of himself as suffering a violent death, committing a dreadful crime or being insane arouses an intense horror. The intensity of the experience fixes it in memory; it becomes associated with almost everything, and the harmful emotion becomes habitual. The important fact in such a case is not the nature of the idea, or how it came into consciousness, or whether or not it has been repressed into the cellar of subconsciousness; these may have some importance; but the great fact is the physical condition of the cortex which permits such excessive and uncontrolled reactions.

TREATMENT

Whether the patient is simply neurasthenic or also psychasthenic, each excessive emotional reaction leaves a condition of instability which is a predisposing cause of the next disturbance; thus the disease perpetuates itself and he is caught in a vicious circle of cause and effect. How can he get out of it? Only by such measures as will temporarily lessen the number and the intensity of the emotional reactions and permanently change the condition of the cortex so as to raise the emotional threshold. The success of any of the innumerable remedies proposed is in proportion to the fulfilment of this indication, and this explains why apparently the same method is a brilliant success in the hands of one man and a total failure with others.

The founder of the rest-cure has always had a most extraordinary genius for reforming the emotional life of his patients. Those who employ what they conceive to be his method without some spark of this genius fail utterly and even make their patients worse. So it is with diet. Enough good food, preferably at short intervals, is essential; but it would be better for most neurasthenics confidently and cheerfully to commit all the dietetic sins possible at an average table than to eat in doubt and fear only the ideally perfect combination of foods. The same principle applies to work, exercise, travel, amusements and reading. They will be beneficial if they conduce to confidence and serenity, but harmful if they cause anxiety, fear or irritation.

The task of reforming the patient's emotional habits and restoring a normal balance and control in his cortex is both difficult and complicated. Every bodily or mental change in the patient has some direct or indirect influence which is favorable or unfavorable, but we must select such a combination of the possible favorable influences as will lead to success and at the same time prevent the unfavorable ones as best we may.

I find it convenient to analyze the problem of treatment as follows: 1. What can the physician do to influence favorably the patient's ideas, and thus control his emotions? This includes everything ordinarily denoted by explanation, suggestion and persuasion. 2. What can the patient be taught to do for himself in happily guiding his own mental processes? 3. What can the patient do in training his body to avoid injurious emotional reactions and favor the desirable ones? 4. What can be done by medicines and other agencies to improve the physical condition of the emotional centers.

1. Influence of the Physician.—Much may be done to displace false and depressing ideas by those that are encouraging and tranquilizing. This part of the treatment begins when the patient enters the waiting-room. No pictures of the dissecting-room or sick-bed, no specimens or surgical instruments should be there; all the furniture and decorations should be suggestive of comfort and peace. It seems trite to speak of the physician's attitude toward the nervous invalid, of the need of an interested, sympathetic, patient, confident manner. Yet only a few seem to realize how the patient is influenced by it. Something like "the insolence of office" is easily acquired in hospital and dispensary work; neurasthenics are trying patients and the physician easily slips into an attitude of indifference or exasperation. It is difficult to exaggerate the advantage of putting the patient at his ease in the very beginning and making it easy for him to tell his troubles and their real or imaginary causes.

In the anamnesis all the causes of fear and worry should be brought to light, not to magnify but to minimize their importance. I do not believe that these are concealed from the patient himself, but that through fear or diffidence he may conceal them from the doctor, and this is always an obstacle to success. Sexual troubles, whether real or imaginary, should be faced in order to remove them or to show how unimportant they are. The fear of insanity should always be uncovered and then lightly explained as one of the ordinary and almost inevitable symptoms of neurasthenia which does not indicate any real danger and is sure to disappear.

Then comes the physical examination, so careful and complete that the patient feels sure nothing could be overlooked, with reassuring words here and there as one organ after another is found to be sound. In summing up, much satisfaction should be expressed at finding the nervous machinery intact and ready to work well. It may be compared to a good automobile which needs only an adjustment of the spark or carburetor to make it work perfectly, or to an erratic watch which will keep accurate time when the balance-wheel is demagnetized. There must be no hedging in giving a favorable prognosis, but it should be understood that time is necessary to a cure and that after considerable improvement an apparent relapse is sure to occur, which, however, will be only slight and transient if the patient follows directions. The special examinations and reassurances must be patiently repeated as occasions arise. When the patient comes back discouraged and argues that he is no better and that his case is more serious than at first supposed, he really wants to be shown that he is wrong and hopes that the doctor will encourage him. In such cases a gain of a pound or two in weight or any other favorable indication may be quite sufficient to put him

again on the right track. To agree with him or to be angry at his foolishness is to lose a golden opportunity.

2. The Patient's Control over Emotions.—The patient must be taught to avoid the occasions for unfavorable emotions. He is to shun all controversies, conversations about health or disease and writings on medicine or hygiene whether good or bad. He must absolutely cease studying his own case. His greatest difficulty will be in attempting to control his own trains of thought, especially when morbid sensations suggest them. To this end all harmless measures of diversion are to be cultivated, including both work and play. If reading has been abandoned it is to be resumed, for short periods at first, in spite of apparent bad effects which are due to fear. The patient must treasure up agreeable things to think about and be ready to take refuge in such thoughts whenever his bad feelings are most troublesome and other diversions are impracticable. In directing this part of the treatment a physician can utilize all that he knows of life in both sexes, at different ages and in the various classes.

3. Physical Control by the Patient.—With all possible care, nevertheless, there will be a residue of unavoidable exciting causes of harmful emotions. What can be done to minimize their effects? Each emotion disturbs internal organs which are beyond direct voluntary control, but it also has characteristic effects on posture, movement, expression of face, respiration and voice, all of which are more or less under voluntary control. By sufficient exercise of will on the part of the patient, therefore, an emotion, although already started, can be changed. Thus with a clear idea of what he wants to do the neurasthenic can substitute relaxation for tension, full regular breathing for irregular gasps, the expression of deliberate ease for that of anxious hurry, and an agreeable response for a sharp retort. In doing this he makes a great change in the sensations which constitute the third stage of the emotion; he to a considerable extent substitutes the sensations of courage for those of fear, of good humor for those of anger, and so on. But this is not all, the internal organs not under direct control of the will are favorably affected indirectly; thus, regular breathing tends to slow and steady the palpitating heart. It is by this process that we learn to overcome the habit of crying in childhood, that we are cured of stage-fright and that we learn to face trying situations of any kind. Note that it is a process, not merely of repression, but of intelligent substitution which can become habitual and be made to prevent even the violent paroxysms of major hysteria. The patient should be drilled especially in correct breathing, so that when he is threatened with a disturbance he can apply the remedy. Then let him start each day with the pious intention to show no fear or vexation in word or expression, still less in action, to make his breathing regular whenever it is disturbed and to keep his voice agreeably modulated and low pitched.

4. The Use of Drugs.—Application of the foregoing principles will greatly help all neurasthenics and for some it alone will be sufficient. We have patients, however, who, in spite of all explanations and encouragement, of all possible shelter from occasions for emotion and of honest attempts to practice the expression of repose, serenity and courage, are still habitually fatigued by emotional disturbances. The emotional centers are chronically irritable. They will gradually improve under the plan already indicated and whatever improves general health will help, but the process is slow In the meantime is there nothing to soothe these irritable centers and so enable the patient to prevent far more of the emotional reactions then he otherwise could? If you can assure him that there is, he will follow your directions with confidence and be more likely to succeed in the mental and bodily training.

The striking effect of certain chemical agents on emotions leads us to believe that in principle, at least, the emotions can be controlled chemically. Witness the depressing effect of the toxins of influenza and typhoid, the soothing effect of opium, and tobacco, the cheer of coffee and the positive exhilaration of alcohol and various ethers. Alcohol would be a priceless boon if its good effects could be secured and sustained without any disadvantage. It is a pity that its bad effects are so great and so certain. Tobacco and coffee may do some good without serious disadvantage, and I think it a mistake to forbid them to a neurasthenic already accustomed to them; but their good effect is not very great. Bromids, so valuable in epilepsy and so much used in various forms of nervousness, seem to me to make neurasthenia worse. The known relation of the internal secretions to emotion, of the thyroid substance to fear, of the testicular and ovarian substances to amorous feeling, and of the pituitary and possibly the pineal bodies to the sexual glands, warrants the hope that remedies of this kind may be of great use; but so far it is only occasionally that they are of service.

The one remedy whose effect is specific, highly beneficial and capable of being sustained without necessarily involving any serious disadvantage is opium. Far be it from me to encourage its needless or reckless use, but neurasthenia is a source of much unhappiness, often exhausting our resources to the uttermost. If it could be cured by a major surgical operation, the attendant danger of mutilation or death would not prevent the operation from being welcomed by many physicians and many patients. It is not wise to reject the most valuable drug now available, provided skill and care can make it safe. Surgeons do not limit themselves to blunt instruments because sharp ones are capable of doing harm, nor do they reject an operation because an unskilful or careless operator would make it a disaster. The following precautions must be taken: 1. Administration is to be only at regular times, never hypodermically but preferably in a capsule, allowing the patient no discretion to increase the frequency of the dose. 2. Other remedies should be combined with it, particularly strychnin and laxatives which will make trouble if the patient exceeds directions. 3. Every prescription should be for a limited number of doses and should carry a prohibition, printed or written in ink, against refilling without special permission. 4. The doses should be small at first, say 0.006 gm. (1/10 grain) of the extract of opium four times a day, and should be cautiously increased, always kept the smallest that will permit a fair degree of progress and later gradually diminished.

Used with these precautions, opium lessens irritability, fear and despondency in neurasthenia, just as it lessens cough and pain in other diseases, and by permitting emotional rest it gives the exhausted nerve-centers a chance to recuperate and greatly aids the patient in forming the correct emotional habits which he is being taught. I am sure that I have succeeded with it in many cases in which without it the difficulties would have been too great; I have never known a drug habit to follow its use in this way, nor have I had any difficulty in discontinuing it when it seemed best to do

so. The dose need not be large; most patients do best when the maximum dose reached does not exceed 0.02 gm. or ⅓ grain of the extract. Only in a few desperate cases have I reached the larger doses such as would be suitable in melancholia, sometimes being rewarded by complete success, sometimes failing.

I know that many will think that in this discussion of neurasthenia I have treated slightingly or altogether omitted the most important factors, such as digestive disorders, ocular defects, defective elimination, pelvic diseases, sexual errors and so on. Any one of these factors may be of great importance on its own account or as a complication, but so far as the neurasthenia is concerned I regard them as secondary or incidental, one might almost say accidental. They have been disregarded in order to show more clearly and in their true proportions the essentials of neurasthenia.

Stedman Building.

ABSTRACT OF DISCUSSION

DR. A. A. BRILL, New York: Dr. Pershing is trying to reduce the conception of neurasthenia to some definite symptom-complex. He seemed, however, in the course of his discussion, to take in conditions which go beyond the scope of the definition with which he started. For instance, despondency and depression do not necessarily belong to neurasthenia, unless we take neurasthenia to include almost anything. I was especially interested in the statement that the symptom of fatigue in neurasthenics is more pronounced in the morning. In my own experience I have found that neurasthenics usually feel much better in the morning and become more and more fatigued as the day advances. On the other hand, patients with depression of the manic depressive type usually feel much fatigued in the morning and, as the day goes on, the fatigue wears off. I should be interested to hear some discussion on this point. If time permits, I should like to hear discussed the James-Lange theory as applied by Dr. Pershing to neurasthenia, which I must say I cannot accept. I was pleased to hear that Dr. Pershing included the mental element in the treatment, for to me psychic treatment is most important in neurasthenia. I would caution against the use of morphin in neurasthenics. I never use it in any of my cases.

DR. JOSEPH M. AIKIN, Omaha: I want to endorse Dr. Pershing's statement with reference to the symptoms of early morning fatigue. Until recent years I regarded that as more particularly a part of the clinical picture of melancholia, in which the depression is so much greater in the early morning than in the later hours of the day. I have, however, in the last three or four years been able to verify the particular symptom of which Dr. Pershing speaks. I am especially pleased that Dr. Pershing does not endorse the use of the bromids in neurasthenia. I have tried them out pretty thoroughly, and do not approve of their use in neurasthenics. Dr. Pershing also voices my experience in rejecting any form of opium whatsoever in these cases. I do not use a hypodermic on a neurasthenic, for any opiate at least, and I avoid, if possible, its employment for any drug whatsoever. There is something in the needle habit that we ought to avoid, even though there be nothing but distilled water in the syringe. What Dr. Pershing presented with reference to laxatives is in line with my experience in the treatment of neurasthenic cases. The less we prescribe laxative medicines or any drugs in the treatment of neurasthenics, the better our results. Intelligent direction as to quality, quantity, time and manner of taking food will give the patient more relief than drugs. If we can get these patients to eat a good variety of food and forget what they are eating, the necessity for laxatives will soon disappear.

DR. L. HARRISON METTLER, Chicago: If we are going to limit the term "neurasthenia" to mere psychic reaction of the emotional type, Dr. Pershing's presentation of the management of neurasthenia is most careful and practical. I am not ready, however, to accept the idea that all of the cases that I have minutely examined and conscientiously denominated neurasthenia are altogether psychic in character, the expression of merely an exalted affective psychosis. Remembering the elaborate and painstaking experiments of Hodge, Vas, Mann, and others in the laboratory, I have remarked a close similarity between the symptomatic revelations in the animals experimented on and the patients in whom I have made the diagnosis of neurasthenia. It is impossible for me to believe that emotional feeling is the basis of these animalistic revelations, as I am asked to believe that they are in the human being. Again, I have always noticed that in the incipiency of almost every infectious disease, long before the disease can be positively and definitely diagnosed, the clinical picture bears a remarkable similarity to that of the fatigue neurosis which we have been wont to call neurasthenia. Here I assume that the trouble is assuredly greater than a mere hyperemotionalism.

To sustain his position, Dr. Pershing adopts the James-Lange theory of emotion, wherein the feeling is said to follow, and not to precede, the cardiac, vasomotor and other disturbances. This theory I have never been able to accept. It is incomprehensible to me that a horrible sight, for instance, should cause the vasomotor apparatus to be disturbed and that this disturbance then causes the feeling of horror. The basis of the horror is not the mere thing looked at, but the ideas springing out of it. Without these ideas the sight would be wholly neutral and awaken no emotion. Once awakened, the emotion in its force and suddenness stirs the cerebral centers, and these reflect their disturbance on all of the organs of the body.

The James-Lange theory might apply in a way to the emotional states of neurasthenia as of any other disease. Abnormal conditions of the body always affect more or less the patient's mental state, but this is not what I understand that these authors intended to convey in their explanation of the emotions. At all events, if I am wrong about this, this application of the theory upholds my contention that neurasthenia is something more than a mere psychosis. I find the psychosis to be the result of some organic disturbance within the body in most of my neurasthenic patients. Psychotherapy alone, useful as it is in hysteria and other pure psychoneuroses, does not help me in the management of neurasthenics. I find that I have to resort to hygienic, physical and medicinal measures of all sorts to restore the patient's bodily health; then the mental state improves *pari passu*.

DR. D'ORSAY HECHT, Chicago: Although I am fully in accord with many of the views expressed by Dr. Pershing in his address, I must confess that I was anticipating something a little different in the attitude toward the general broad conception of neurasthenia as a disease entity. I had hoped to hear an expression of the same regret that I have felt for so long, that we, as neurologists, had too tenaciously clung to the view of neurasthenia as a distinct clinical condition. I, for one, am interested in the passing of neurasthenia as a disease *per se* in the sense in which Beard put it forth. I would even venture to add that, in my opinion, the whole tradition of neurasthenia as a primary condition of irritable weakness should have perished long before ever it was well on its way in medical literature. I have come to believe that in practically all instances of so-called neurasthenia a careful physical examination will reveal underlying pathology, perhaps not obvious pathology, but enough of organic change, however latent or subtle, to render the fatigue phenomenon explicable. If we look at neurasthenic individuals, moreover, as sick primarily in their bodies and not in their minds or their "nerves," we shall have gone far toward a better understanding of an asthenic symptom-complex. Hitherto we have put too much stress on the emotional values in these cases, and have seriously confounded them with the psychoneuroses, with which, I believe, they have little or nothing in common. I sometimes wonder if we are sufficiently careful to determine a small half-hidden focus of tuberculosis, which a tuberculin reaction might reveal. Again, I wonder

if polyglandular insufficiencies are sufficiently appreciated to be held accountable for a fatigue syndrome. I wonder whether the rôle of faulty metabolism is well enough understood to be thought of in this same connection. Surely our increasing refinement in the field of serum and vaccine therapy should pave the way not alone for greater accuracy in diagnosis, but also for better success in the treatment of these patients, with their reduced vitalities, chronic, vague pains, nervous irritability and other evidences too familiar to recount. It is the physical diagnosis that I regard as important in the type of cases to which we refer, and the more keenly that we regard arteriosclerosis, latent tuberculosis and low grades of sepsis from one source or another, and what, for lack of a better term, we may call the toxemias of polyglandular origin, the less will be our provocation for making the diagnosis of neurasthenia.

DR. HOWELL T. PERSHING, Denver: I admit that any definition of neurasthenia is only approximate. I must also confess that I have occasionally made the mistake of regarding incipient melancholia, exophthalmic goiter or pulmonary tuberculosis as neurasthenia. As time has gone on, however, and I have done my best to perfect my diagnostic methods, so as to exclude all such conditions, there still remains a large number of cases of what in our present state of knowledge can be called only neurasthenia. Even the finding of some organic lesion does not forthwith exclude neurasthenia. There is a neurasthenic type of patient, with slight organic disease, who is quite different from the average patient with the same disease; the emotional disturbance is so out of proportion to the physical disorder that the neurasthenic condition must be dealt with on its own account.

I admit, of course, that neurasthenia, once established, has a physical basis in the oversensitive cortical centers, and that this may be aggravated by many morbid conditions in various parts of the body; but the essence of my contention is that exciting causes, which we are in the habit of regarding as purely mental, have far-reaching bodily effects, which not only aggravate but also originate and perpetuate the neurasthenic condition. That mere perceptions, mere ideas (the physical basis of which is purely cortical), do produce extensive and profound bodily effects is a matter of commonsense observation. Else, why should a piece of bad news cause sobs, tears, tremor, palpitation, arrest of digestion and loss of weight? Let us by all means study the physical condition of the patient from every point of view and improve it to the utmost. If we narrow our vision to the physical side, however, and do not improve the patient's mental habits we fail. In a case of nervous, that is neurasthenic, dyspepsia, you may wash the stomach, make the diet perfect and give any or all of the aids to digestion, with the result that the patient is still a dyspeptic and may be even worse. Leave the stomach alone, correct the emotional habits and you cure him.

PROGRESS IN PUBLIC HEALTH WORK *

GUY L. KIEFER, A.M., M.D., D.P.H.
DETROIT

The science of medicine has advanced more rapidly than any of its sister sciences. It is equally true that the science of hygiene has made more rapid strides forward than any of the other branches of medicine. Bacteriology and sanitary engineering have had much to do with the great progress of public health work. Most of the advancement has taken place in the past twenty-five years and its pace has quickened constantly during that period. Practical public health work, particularly as applied to municipalities, has undergone such a change that even to one intimately associated with it, the change is almost incredible. Let us take as a theme the analysis of the organization of a public health department and its work as it existed twelve years ago in comparison with the same organization and work to-day.

In 1901, on July 1, the board of health of a city at that time having approximately three hundred thousand inhabitants had a list of employees numbering twenty-four, and an appropriation to be expended in the work of $31,352. On July 1 of this year, the same department in the same city, which to-day has a population of something over five hundred thousand people, numbers its employees at 189, and has an appropriation of approximately $240,000.

The activities engaged in by the twenty-four employees of twelve years ago may properly be divided into the following subdepartments, or subheads:

1. An executive department manned by a health officer and a secretary.
2. A department of vital statistics, consisting of a registrar, one clerk and one night clerk.
3. A department of contagious diseases, consisting of two medical inspectors, two quarantine inspectors, a disinfector and a hospital for the isolation of small-pox patients only.
4. A laboratory in which a single chemist and bacteriologist was employed.
5. A department of milk and food inspection, consisting of two milk inspectors and two meat inspectors.
6. A plumbing and sanitary department, consisting of a chief plumbing inspector, five additional plumbing inspectors, one garbage inspector and one clerk.

All of these departments are still in existence, but have been so much enlarged that they can hardly be recognized. Besides the changes made in these existing departments, however, four new subdivisions have been added, as follows: a housing department, a smoke inspection department, a child welfare department and a department of publicity and public instruction.

It will be interesting now to discuss for a few moments the various departments as they exist to-day in comparison with formerly.

The executive department still has at its head a health officer, who is assisted by a secretary, a clerk and a stenographer.

The department of vital statistics, which is the backbone of every modern and up-to-date bureau of health, has had added to it a vital statistician and an assistant vital statistician. The duties of these officials are too well known to the members of this Section to need further comment. Allow me to say, however, that the board of health here described as it existed twelve years ago did not differ materially from many other similar departments, and that the registrar in the department of vital statistics was expected to keep records of births, deaths, contagious diseases and of everything recorded by that department, save possibly the issuing of certified copies of burial permits and other purely mechanical work of this kind. It occurs to me, and I feel that it should be emphasized here, that the first position to be established in the health board of a small city, or even of a rural community, after the appointment of the health officer, is that of vital statistician. Without careful bookkeeping of births and deaths, without careful accounting of the cases of contagious diseases, the work of the department must necessarily be handicapped.

The largest department in the number of employees and in the scope of its work is the division of contagious diseases, which has grown from a small beginning—the chief duty of which was to place placards and quarantine guards on houses wherein were cases of small-pox, scar-

* Chairman's Address before the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

let fever and diphtheria—to a department, the duties of which are so manifold that they are difficult to enumerate and some of which should be grouped under the child welfare department. This department employs four medical inspectors, one chief medical inspector of schools aided by thirty physicians, eleven dentists, of whom four are inspectors and seven are operators, and twenty-seven nurses. Fifteen of these nurses are engaged in medical inspection of schools in the winter, and, to some extent during that period, they give attention to the prevention of infant mortality. During the summer months they devote all of their time to the latter activity, and twelve of them look after the houses in which there are contagious diseases, seeing to it that persons in such houses are properly instructed in the prevention of the spread of the given disease. These nurses take the place of the former quarantine inspector and disinfector, because they are much better able than that officer was to inspect the premises and to disinfect them when necessary, and above all, because they know how to give instruction in the prevention of disease. A number of clinics are included under this head, many of which are for the purpose of giving relief and aid to schoolchildren in whom physical defects of various kinds have been found, and to whose parents the correction of these defects has been recommended. There are five dental clinics, one nose and throat clinic, one eye and ear clinic, one children's tuberculosis clinic, besides a general tuberculosis clinic, a mothers' clinic, the object of which is the prevention of infant mortality, and a venereal disease clinic.

Many health departments have under their supervision some sort of place usually designated by the public as a pest-house for the reception and care of small-pox; such an institution was maintained twelve years ago, and about six years ago a tuberculosis sanatorium was begun by the erection and maintenance of a small tent-house for the care of two patients. Since that time the sanatorium has been gradually increased until now it has accommodations for eighty-five patients. During the last five years the construction of a beautiful modern pavilion hospital for contagious diseases was started. At present there are completed and occupied, an administration building, a pavilion for forty cases of scarlet fever, and a similar one of equal capacity for diphtheria patients. Under course of construction are two additional buildings, one of which will accommodate at least fifty cases of venereal disease, and the other thirty cases of measles and twenty cases of various other contagious diseases in separate isolation compartments. Money is also available at present for the enlargement of the scarlet fever pavilion so that it may accommodate fifty additional cases of the diseases, and after the completion of all of these additions to the new buildings, together with the tuberculosis sanatorium and small-pox hospital, there will be a capacity of nearly three hundred and fifty beds.

The laboratory has had to be increased to meet the demands of the other departments. The chemist and bacteriologist originally in charge of this work has become the director of laboratories and there are two men busily engaged as his assistants, one of whom devotes almost his entire time to the analytic work that needs to be done in connection with the present department of milk inspection.

The division of milk and food inspection, which twelve years ago was manned by two milk inspectors and two meat inspectors, now consists of a chief dairy and milk inspector, ten assistant inspectors, one clerk and the two original meat inspectors. The change from "milk inspector" to "dairy and milk inspector" is not merely a change in name. In the early years the work done by these men consisted largely in the collection of samples from milk-wagons, many of them being dipped from the old-fashioned milk receptacles from which the retail peddler sold his milk. The necessity of such wagon inspection no longer exists because milk can be sold according to the improved regulation only in bottles. The collection of samples for analyzing has therefore been considerably simplified, and it takes the time of only one or two men to collect sufficient samples to keep track of the distribution of milk, especially since most of the work is done on the dairy farm. Inspections are made throughout the entire year of all of the farms from which milk is sent to the city, and the score card of the United States Department of Agriculture, Dairy Division, is used for this purpose. Whenever a farm is scored, a duplicate of the findings is left with the dairyman, so that he can readily see in which direction improvement is most necessary. A minimum score is required of him, and in this way the quality of the milk coming to the city has been much improved.

Meat inspection has remained to a great extent at a standstill because the solution of this problem is in the establishment of a central abattoir, in my judgment, owned by the city, and until this can be had, meat inspection cannot be made ideal, but must be continued because of the fact that some inspection, even though recognized to be imperfect, is better than none.

The department of plumbing inspection has grown so that now it has on its pay-roll a sanitary engineer, nine plumbing inspectors and two clerks. This department endeavors to pass on plans, so far as plumbing and drainage are concerned, of all new buildings, and to have the plumbing of these buildings inspected when it is installed, and reinspected when the fixtures are placed. Besides this the plumbing inspectors endeavor to look up all complaints of insanitary conditions due to old and imperfect plumbing, and have them corrected.

The housing department is the first of the new divisions and consists of a chief housing inspector and eight assistant inspectors. It is impossible in a discussion of so broad a subject to dwell at length on the necessity for this new activity. On the correction of housing conditions in any city depends to a large extent the reduction of its cases of sickness and its number of deaths. The plain object of such a department is to see that people have better houses in which to live, with more light and improved ventilation, and that they are taught how to keep such premises sanitary after they have been provided. Overcrowding of houses, and particularly overcrowding of sleeping-apartments, is one of the great causes of sickness and one that can be overcome only by a constant campaign of education, kept up by a large number of vigilant and intelligent housing inspectors; that the number employed by this department of the board of health is altogether too small is conceded, but some progress has been made in its growth from nothing to an inspection force employing nine men, and certain it is that the need of improvement of housing conditions has been recognized.

The smoke inspection department is manned by a smoke inspector and one assistant, who endeavor to prevent the emission of unnecessary clouds of black and dark-brown smoke from the chimneys, particularly of industrial institutions. It has been argued in the past that the cessation of smoke means the closing of factories and the lack of prosperity, but it has since been proved that factories of nearly every description can manufacture their goods in just as large quantities with-

out smoke, certainly without so much smoke as to be a nuisance, as they can by the belching forth of quantities of thick, black, unconsumed carbon.

The child welfare department is made up of some of the activities that I have already enumerated under the head of contagious diseases, which should be classed separately. The medical inspection of schools, together with the dental inspection, the nurses that have to do with this work and with the prevention of infant mortality, the little mothers' league classes in the schools, the schoolchildren's clinics, and the mothers' clinic, really constitute the department of child welfare.

Last in the enumeration of the new subdivisions I have placed the department of publicity and public instruction, and this from the point of view of its importance should be placed first. Public health work has come to be recognized as a campaign of education, and the more thoroughly such a campaign can be carried on, the better will be the results. The mere enactment of state laws and city ordinances of various kinds and the attempt at their enforcement with a big stick are methods of the past, and the instruction of the public in matters of public health and preventive medicine has taken their place. This department publishes a bulletin for the board of health, which gives the physician and public such instruction as is considered of the greatest value. It is allowable and quite customary to use the public press as extensively as it will lend itself to this purpose. Public addresses should be made, and are made by the various members of the staff, and in this city for the most part by the health officer. That this department is one of importance is seen by the fact that the American Medical Association has established a speakers' bureau, the object of which is to give the public anywhere instruction in preventive medicine and public hygiene. The calls for such instruction are becoming more frequent, and speakers are asked for all over the country. The result of such work is apparent, inasmuch as it can be readily seen that the public will give their cooperation to the enforcement of sanitary regulations much more readily if they understand them than if they are simply expected blindly to obey the law. In speaking of the department of publicity and public instruction, which has become a necessary adjunct in every bureau of health, I cannot help saying a few words about the public health nurse. Public speeches which are made at the request of a medical society, a civic organization, or a woman's club are of advantage in this work, but they do not compare with the good results to be obtained from the house-to-house inspection which is given by the public health nurse to the people who most need it. Persons of this class are not seeking this instruction and do not care for it, but it is brought to them into their homes, and by one thoroughly competent and one who gains their confidence. Were the attempt made to have physicians instruct persons, particularly mothers and fathers, or any adults, in private houses in the prevention of disease, it would be thought, even in this day of advanced preventive medicine, that the doctor was going beyond his sphere; in most cases he is still called to administer to the sick, and if possible restore them to health, and the instruction as to the prevention of the disease from which the patient is suffering must be left to some one else. This some one else is the public health nurse. Her activities should not be limited to the rendering of assistance to the medical inspectors of schools, to the instruction of mothers in the care of babies for the prevention of infant mortality or even to the instruction in the prevention of tuberculosis. There is no reason why the public health nurse cannot as well visit houses in which there are cases of other contagious diseases, for example, scarlet fever, diphtheria, etc. With our convictions that these diseases are spread by contact, either directly or indirectly, we have abandoned the old theory that it might be dangerous to have a nurse visit these homes for fear of spreading the disease; by giving the intelligent care to her hands and her clothing that she knows how to give, all danger is removed, and her work of instruction may be carried on so that it will reach all classes of cases. It has even been suggested—and the suggestion, in my judgment, is a good one—that the work of the public health nurse should be extended to include housing and sanitary inspection. In some of the smaller cities in Michigan, she has been clothed with the authority of sanitary officer and policeman, and the results obtained by her work have been excellent. This, of course, is again because she instructs first, and, only when absolutely necessary, prosecutes afterward.

Let us look for a moment at some of the results obtained in the work accomplished by a larger and improved health department in the city about which I am writing and see whether or not it pays. Taking from our mortality table the figures of some of the more important causes of death, we find that the mortality-rate from all causes for 1901 was 15.05 per thousand; for 1912 it was 15.42. The death-rate from scarlet fever was 24.3 per hundred thousand for the former year and 11.4 for the latter. For diphtheria, the comparison is 39 and 37; for tuberculosis 124 and 98; for typhoid 20 and 18.8. The only column in which we find an increase in the death-rate is under deaths from all causes, and yet when we consider the growth of the city and figure out the many additional reasons for deaths from all causes in a large city as compared with a smaller one, it will be seen that the actual increase is very slight. In each of the diseases mentioned, there is a decrease in the mortality-rate, and when we figure the actual number of lives represented by the difference in the mortality per thousand, we find that from these four causes alone, 212 lives were saved.

In comparing the infant mortality for 1901 with that for 1912, we are handicapped because births were not reported until a later date, or at least not universally reported, and, therefore, we can base the mortality of infants only on the deaths from all causes, and we find even with this improper method of calculation that for the former year 27.05 per cent. of the deaths from all causes were in infants under 1 year of age, and for the latter year only 25.6 per cent. Taking the infant mortality tables for 1906, the first year during which births were regularly and universally reported (because of the fact that the law imposed a penalty for failure to report and paid a stipend for the report), and basing the number of deaths on the number of births reported, and then comparing them with the same figures for 1912, we find that in 1906, 7,752 births were reported and 1,679 deaths, giving an infant mortality-rate of 216.5, whereas for 1912, the number of births was 15,252, the number of deaths 1,998, an infant mortality-rate of 131. In other words, had the death of infants continued for 1912 at the 1906 rate, there would have been 3,358 such deaths instead of 1,998, and the number of babies saved in the latter year over and above the 1906 rate is the difference between these figures, or 1,360. There can be no doubt that the progress made in public health work has been considerable and that money expended to keep pace with this progress is worth while.

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EXPERIENCES OF A HEALTH OFFICER IN PORTO RICO *

ELMER F. OTIS, M.D.
PEÑUELAS, P. R.

William H. Taft, while President of the United States, once said:

> We have ground for national pride in the fact that England, France, Germany (not so much so) and Holland have been engaged in colonial business in the tropics for a hundred years, some of them for two hundred years; and yet it remained for American physicians (especially of the Army) to discover more things in ten years than were discovered in the whole two centuries before that time.

Porto Rico has been able to contribute a portion to the advancement along these lines. While the island was under military rule an example was given of what might be accomplished by organized effort. We are not to be surprised, therefore, that when civil government was first granted the sanitary work was instituted. It was not until two years ago the first of July that the service was organized as a separate department—with a former Army medical officer, Dr. W. F. Lippitt, at the head. At the next meeting of the insular legislature it was reorganized until it now compares favorably with those of the highest standard. At still the next meeting of the legislature, the past winter, the work was enlarged so as to include not only the campaigns against typhoid, tuberculosis, hookworm and mosquitoes, but an institute of tropical medicine was started. The purpose of this new law is to provide thorough instruction for the employees of the sanitary service, and also to educate and enlighten the masses.

A hospital for the care of contagious diseases and those who are suffering from special affections will be erected in each of the seven districts of the island. Health officials and insular doctors will be invited to come to these centers for demonstrations. It is also planned to give special courses in tropical medicine to these men and also to doctors from all over the world who may desire to study these diseases clinically.

The sanitary work is devoted to the following general lines:

1. Routine office duties.
2. Educational efforts.
3. Special campaigns against prevailing diseases, such as tuberculosis, uncinariasis, malaria and epidemics.
4. The Institute of Tropical Medicine.

In addition to the activities of the sanitary department, special mention might be given of the noble work being done by our *liga antituberculosis* in its persistent efforts against the white plague. The government authorities and best medical men are intimately associated with and second the efforts of its energetic officers.

The sanitary department, after summarily obliterating the plague conditions, at once began to wage a campaign against mosquitoes, even though yellow fever has never invaded our coasts since the American occupation. Malaria in certain districts of the island has been more than troublesome, however, and there is already a noticeable decrease in the number of mosquitoes.

Rat-proofing operations have been pushed throughout the several municipalities during the past year. Constant vigilance is exercised in order that we may not be surprised by an epidemic being brought to us, in case some other government may endeavor to hide the real conditions in order that its commercial relations may not be disturbed.

Antityphoid vaccinations are freely administered in every part of the island; while antirabic serums are given on the slightest possibility of the development of hydrophobia. Antidiphtheritic, antitetanic and antistreptococcic serums are available and freely used by physicians.

A special food and drug inspection department is one of our active agents for the safeguarding of the health and lives of the people. Almost daily confiscation of suspicious articles is reported. These articles are then sent to the special laboratory for analysis. Tons of spoiling or infected foodstuffs are sometimes refused a landing. Thus many deaths from toxemias due to poisonous foods have been eliminated. An annoying example of food adulteration was the placing of nitrobenzene in peanut oil as a flavoring, which resulted in sickness and some fatality.

ANEMIA WORK

Efforts against uncinariasis have occupied the attention of our leading men from the start. It can be truly said that, aside from pulmonary tuberculosis, there is probably no one thing that so stubbornly resists all medical efforts as the treatment of the hookworm anemics. The organization and results are effective; but the masses have not yet been able to see the necessity for putting forth the extra effort required, strikingly similar to experiences in tuberculous work.

Thus it is that, whereas at first almost every one was infected with worms, now about half of the inhabitants have been released by persistent medication and care. This simply shows what results may be accomplished in time if the efforts are well organized and the work is pressed forward. In my series of cases recently taken from children of the schools located in varying degrees of altitude and atmospheric humidity, it was revealed that the infection ranged from 13 per cent. in the low, dry barrios to 60 per cent. in the moist coffee plantations on the mountain sides.

SPECIAL EXAMINATION OF SCHOOLCHILDREN

Probably the next problem that will be taken up by the sanitary department will be that of the schoolchildren—the generation of the future. Already orders have been issued from headquarters instructing every health official to make a special study into the physical status of each child, especially as relates to the problem of anemia. While planning this work, I conceived the idea of broadening the scope so as to include a study as to the physical efficiency and defects of each pupil, since these strikingly affect their mental capacities. Accordingly, the study outlined as to the condition of each individual pupil examined was personally made—whether found in the town or the almost inaccessible country schools of the mountain region. By the use of the zero, minus, plus or double-plus signs, a fairly accurate representation of the physical findings was obtained in as short a time as necessary. They were taken in the following order, in tabulated form: age, sex, color, robustness, adenoid tissue, tonsil hyperplasia, teeth, vision, cataract, trachoma, pallor, percentage hemoglobin and examination of feces for ova of *Ankylóstoma*, *Ascaris*, *Trichocephalus* and sundry other infestations. The observations outlined may be noted in the accompanying tabulation, while the details will be left to a fuller report after the work has been more thoroughly worked out.

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

PEÑUELAS SCHOOLCHILDREN

Total enrolment	1,134
Number examined	1,044
School sessions:	
Rural	18
City (town)	8
Percentage feces infested with hookworm ova	38
Maximum infested in one school	60
Minimum infested in one school	13
Percentage infested with other parasites	72
Maximum infested in one school	89
Minimum infested in one school	52
Average percentage of children showing evident pallor	54
Average percentage hemoglobin	81.5
Maximum hemoglobin	92
Minimum hemoglobin	35
Percentage defective teeth	67.5
Percentage tonsils and adenoids	84

Suffice it to say that one is strongly impressed at the overwhelming percentage of eggs found (other than those of hookworm); and that they seem to bear a certain relation to the uncinariasis and also to the degree of pallor. The large percentage of *Ascaris* is closely followed by that of *Trichocephalus*. Then came tapeworms, pinworms, distomas, flukes and amebas at times. One cannot but wonder if, after all, the worms represented by the large number of eggs that are to be found do not have a harmful influence, if only by their presence. It is not an unheard-of thing for an infant to pass a mass of roundworms as large as one's two fists, wriggling, squirming worms.

It has been well said, "It is readily conceivable that the animal parasites also may secrete [and I may also add "excrete"] toxic or otherwise active substances which are not without moment to their hosts." An important contribution on this subject was made by Dr. Flury. He has shown that "the tissues and excreta of these worms contain numerous compounds capable of inducing local hyperemia, inflammation and necrosis." Some of these extractives also produce a hemolytic action. This may perhaps help to explain why the color does not always quickly return when the ankylostomas are thoroughly expelled from the intestine.

YELLOW FEVER

Mention was made of our active campaign against the mosquito in order to prevent the possible invasion of yellow fever. The history of sanitation under our military government in Cuba was striking. Deaths from malaria dropped from 350 to 10 annually. At the same time the yellow fever did not so respond; and the natives began to talk of the superiority of their customs over the newly imported ideas on sanitation of the "Americanos." As soon as a certain mosquito, however, was discovered to be the carrier of the infection, the whole matter promptly terminated. In Panama, under military control, like results were obtained, but much more quickly.

The relative efficiency of the purely military to the civil form of government in sanitary matters is striking in those tropical possessions where the combination of determining factors is so diversified. It is generally conceded that the results obtained in every community from special sanitary work have been due to the fact that the authorities were given "a free hand"; this is in proportion to the extent that the leaders in the government think as medical men, and it is influenced in proportion to the political bias of those in power. Hence, the results accomplished under any civil government will be relatively slow as compared with those under military rule. It is indeed well that our government made its "records" before the Canal Zone is placed under civil rule. What was accomplished in three months in the Canal Zone (the eradication of yellow fever) it took three years to accomplish under the military protectorate of Cuba. Likewise a proportionately longer time will have to elapse before the "popular sentiment" of the Porto Ricans can be aroused to a realization of the importance of quarantine and rigid sanitation—although surprising results have already been accomplished for the amount of effort put forth.

While we feel thankful for the results already accomplished in Porto Rico, still we may expect even greater gains when we are assisted by the latest organization of the department and the beneficial effects of the Institute of Tropical Medicine, with its hospitals.

ABSTRACT OF DISCUSSION

Dr. J. W. Trask, Washington, D. C.: In studying the prevalence of diseases we are at times apt to overlook the fact that the number of deaths registered may in no wise show the prevalence of a disease; nor, for that matter, its real importance as a public-health problem. Take as an illustration malaria in the continental United States. The registration of deaths from this disease is in many localities quite undependable. In one state there were twelve deaths registered during a certain year. It developed, as a result of considerable correspondence, that in all probability not one of the twelve deaths had been due to malaria. The same thing is, in some measure, true in many other diseases. Often we cannot tell from the registered deaths the prevalence of a disease. Another illustration of this, familiar to you all, is small-pox as it exists in this country. It has of late years been a common experience to have recorded in the neighborhood of seventy-five or one hundred deaths from small-pox during the year. If we were to attempt to ascertain the prevalence of the disease from the mortality record it would be necessary to assume a known case fatality-rate, and if we took the rate which is common in most parts of the world, namely, 15 or 16 per cent., we should come to the conclusion that there had been in the country five or six hundred cases of small-pox, whereas, from the reports of cases we know that there had been from thirty to fifty thousand cases at least, and that the fatality-rate had been much below 1 per cent., and in some states as low as one-fifth of 1 per cent. We also get into difficulties and arrive at incorrect conclusions if we assume that we can take this general fatality-rate of, say, one-half of 1 per cent. as a basis to estimate the prevalence of the disease from the recorded deaths.

We know the fatality-rate of comparatively few diseases, and the probabilities are that in comparatively few diseases is there such a thing as a definite fatality-rate. The fatality-rates of many diseases vary with the season or locality and sometimes with the outbreak or other conditions not as yet known.

The registration of deaths is a necessity, for many and sufficient reasons, in every self-respecting community, but the prevalence of most diseases can be shown only by the recording of the occurrence of cases, for the occurrence of cases, not the deaths, shows the occurrence of the disease.

Dr. E. F. Otis, Peñuelas, Porto Rico: This question is a very important one to us; and for that reason we are trying, so far as possible, to get our laboratory to examine the patients before they die and to know in the central office what the diagnosis is—how many typhoids are found in a certain epidemic, and more especially, how many actual cases of malaria are found in a certain district by the microscopic findings of the blood-smears. Stress should be laid on the fact that in order to get results we must educate the people so that they may cooperate with us in our efforts to bring about sanitary reforms; because sanitation under legal pressure is slow and hard work. This is in contradistinction to sanitation under a military régime, so beautifully illustrated in the Canal Zone.

URETEROVESICAL CYSTS

AN OPERATIVE PROCEDURE FOR THEIR RELIEF *

JOHN R. CAULK, A.M., M.D.
ST. LOUIS

Ureterovesical cysts, cystic dilatations of the lower ureter or intravesical ballooning, a lesion, which in the precystoscopic days was considered more or less of an anatomicopathologic curio, is being more frequently observed and studied as time progresses. Until 1898 Englisch was able to collect but sixteen authentic cases, and Adrian, 1905, reported fifty-two cases collected from the literature. These observations were mostly necropsy findings or accidental discoveries during the course of vesical operations. Of the fifty-two cases which Adrian collected, only twelve were diagnosed correctly during life. Since the advent of the cystoscope and a more thorough training in the interpretation of cystoscopic pictures, this condition is becoming more generally recognized.

The literature seems to show that these dilatations are more frequent in females than in males. Englisch in his series reports ten cases in females and six in males. It may occur at any age, some authors stating that it occurs, as a rule, at a younger age in females that in males. Cases have been observed in patients ranging from six weeks to sixty-two years of age. In the opinion of some authors, these sacs, because they occur in the new-born, must frequently be of congenital origin, especially since they are often associated with other developmental abnormalities, such as faulty insertions of the ureter, double ureters, harelip, cleft-palate, etc. Others are even more emphatic as to the congenital nature of these cysts, asserting that, even though certain inflammatory conditions, such as changes due to the passage of a calculus and ulcerations, have been assigned as predisposing causes, the lesion, nevertheless, is always congenital. This assertion, however, impresses me as being too sweeping.

The cysts may be unilateral or bilateral. It seems certain that many of the cases are acquired and are secondary to inflammatory processes. Whether congenital or acquired, the two most important factors in the production of these formations are obstruction and the disposition of the ureteral insertion into the bladder. Congenital obstructions of the lower ureter are not particularly infrequent. In many cases they are considered to be due to a plugging with epithelium in fetal life or gluing together by exudates. The acquired obstruction may be due to inflammatory changes of the ureteral orifice secondary to the passage of calculi, to ulcers in its region, to ureteritis from a renal lesion, such as tuberculosis, or to contractions following faulty implantations after a ureterovesical anastomosis. The second factor, the manner of ureteral insertion into the bladder wall, is also extremely important. The ureter normally runs obliquely through the bladder wall and is protected throughout its intramural course by the firm bladder muscles, except for the short distance through which it passes under the vesical mucous membrane to end in its corresponding orifice at the side of the trigon. In cases in which this submucosal distance is long, dilatations of the lower end of the ureter seem more frequent, and, as a rule, the longer this distance, the larger the cyst; hence, if an obstruction occurs at such an orifice, it is easy to conceive how a sac will form following the planes of least resistance, namely, toward the bladder.

Such cystic dilatations may assume different forms and shapes, the most frequent form being that of a papilla with the opening of the ureter at its tip. Other forms, such as the triangular, finger-like, cherry-like, round and ovoid, have been described. The size may vary from a dilatation which is scarcely appreciable to one which may completely cover the trigon and extend down to the internal orifice of the bladder and cause symptoms of obstruction.

The ureteral orifice may open at any part of the cyst; more frequently, however, and especially in larger cysts, the opening is at one or the other side. The composition of the cyst wall has been the subject of some controversy. All authors are agreed that it is composed of two mucous layers, that of the bladder and that of the ureter. A controversy has arisen concerning the intervening structure. The majority of authorities have found only fibrous tissue between the two mucous surfaces; a few, however, have noticed muscle tissue. Stones have been reported within the cyst (Freyer).

The ureteral mons may vary in shape and size. As a rule, it is circular and constricted. In some cases it seems quite patent; in other cases it is blind. Englisch reports six cases of this type. Many cases of this kind have associated with them evidences of obstruction in the upper tract, hydro-ureter and pyo-ureter and hydronephrosis and pyonephrosis.

The symptoms of this malady are variable and indifferent; the small dilatations, and many of the large ones, may occur without producing any appreciable disturbances. The usual symptoms may be classified as vesical and renal. The relation of the cyst to the urethral orifice is the important factor in the symptomatology. If it does not impinge on the internal sphincter, it may cause no symptoms, except, at times, at the end of the urinary act, when there may be terminal pain due to pressure. If the cyst is large enough to interfere with the normal emptying of the bladder, the usual syndrome of obstruction may be present. Naturally, if cystitis intervenes, the symptoms will be magnified. The renal symptoms are those of obstruction, namely, of hydronephrosis and pyonephrosis. These complications are more liable to ensue in cases of double ureter. Cases have been reported in which the opposite ureter has been obstructed owing to a large cyst.

The diagnosis is, as a rule, simple and can be made definitely by the cystoscope, which reveals in the region of one or both ureteral orifices, protrusion and retraction of a cyst-like swelling with a smooth surface covered by mucous membrane ballooning at the efflux of urine and retracting at the end of the act. Ordinarily the orifice is visible, generally presenting some abnormality. However, this is not always so, as in the interesting case reported by Young, in which the ureteral orifice of the intravesical balloon was within a diverticulum. Such cystoscopic findings will easily differentiate a ureterovesical cyst from any intravesical pathologic lesion of which I am aware.

The operations done in cases reported in the literature have been of two kinds, the suprapubic and the endo vesical.

The suprapubic operations which have been described have been (1) splitting the cyst and suturing lengthwise the two mucous surfaces, as in Adrian's case; (2) the resection of the cysts with a circular suture of the two mucous surfaces; (3) the hernia operation described by Young and utilized in his case of a ureterovesical cyst

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913

within a diverticulum. The endovesical operations have consisted in the splitting of the cyst at its ureteral orifice by means of a knife or scissors. Cases of this kind have been reported by Kelly, Pawlik, Albarran, Barringer and others. Results in some of these cases have been satisfactory. The objection to this procedure has been that recontraction of the orifice has been so frequent and rapid. Pawlik and Kelly mention this in their report and advise repeated dilatations similar to those utilized in cases of urethral stricture. Dilatation was done 112 times in Pawlik's case to prevent contraction.

I shall report six cases of well-defined ureterovesical cysts presenting some interesting features, which I have had the opportunity of observing.

CASE 1.—Mrs. W., aged 39, was seen first in April, 1911. She complained of intermittent chills and fever, pain in the right kidney region, great vesical distress and marked asthenia. This woman had always been more or less of a chronic complainer. Her chief disturbance centered around her menstrual life, her menses having always been irregular, painful and profuse since their advent when she was 14 years old. In 1901 the patient had a placenta praevia. The fetus was removed and she suffered bad laceration of the cervix, which was later repaired. The patient said that in 1905 a doctor told her that she had a prolapsus of the uterus; for this she wore pessaries for four years. In 1911 a hysterectomy was performed and the conditions found at the operation were a fibroid uterus and cystic ovary. The patient reacted poorly after operation, had great trouble from her anesthetic, continued nausea, and marked weakness. On the twelfth day after operation a leakage of urine through the vagina was discovered. This continued for eight weeks. The patient in the meantime had developed a severe cystitis and evidently an infection in the right kidney pelvis. The diagnosis of a ureterovaginal fistula was made and a ureterovesical transplantation was done. The break in the ureter was found about ¾ of an inch from its lower end. It had resulted evidently from a ligature.

Following this operation the patient did fairly satisfactorily for about twelve days, when she began to have pain in her right side in the kidney region and developed irregular fever, chills and sweats. She was treated with urinary antiseptics, copious flushings with water and colon vaccine, as a colon bacillus infection was found. This time the patient left the hospital, went to her home in Wisconsin and remained there until the middle of October. The first part of her stay was fairly comfortable, but she was hampered more or less constantly by pain, chills and fever.

In September the pain in her side became more severe, the chills more frequent and the temperature ran higher. This time the patient began to develop symptoms of severe cystitis and gradually fell into a serious condition. She returned to St. Louis and consulted her surgeon, who found her in a very bad state, extremely weak and septic. She had a large mass in the right hypochondrium which was tender, and she was suffering extreme bladder distress. Her condition was so precarious that the surgeon deemed it unsafe even to attempt a nephrotomy, as she had reacted so poorly to former anesthetics and stood operation so badly. At this time I was called to see the case, and was asked if there was a possible chance of helping the process endovesically.

Cystoscopic examination showed an interesting picture. The bladder showed a general subacute cystitis, but the left ureteral orifice showed no important changes. The right half of the trigon was atypical owing to functionless ureteral orifice. Just above the region of the ureteral orifice a mass about the size of a large walnut was seen, which intermittently swelled and retracted. In the outer and upper part of this mass, when it protruded into the bladder, a small opening could be seen pointing directly to the right and ejecting small amounts of cloudy urine.

It was evident that the obstruction was mainly at the mucous membrane of the bladder, and I suggested to the surgeon that bladder drainage should be instituted in this place. For this purpose I passed a urethral speculum and then introduced a sharp hook. Next I introduced a spear, and then removed the speculum. The cystoscope was introduced and the balloon in the region of the orifice was caught with the sharp hook under the guidance of the cystoscope. This was given to an assistant and put on tension. I then pushed the spear through the orifice, and a large gush of cloudy material flooded and obscured the field. Pressure was made on the kidney in order to facilitate drainage. After the bladder was cleaned and refilled with clear solution, a knife was passed into the slit made by the spear, and two lateral cuts were made as deeply into the bladder wall as I felt safe in attempting. There was very little bleeding owing to the scar tissue. Following this, a ureter catheter passed easily and the renal pelvis and ureter were injected with collargol. A roentgenogram showed a large dilated renal pelvis about the size of a small orange; the ureter was markedly dilated and the stricture could be easily seen in the vicinity of the bladder. The ureter catheter was left in place in the ureter for lavage and for dilatation of the stricture. On account of vesical and ureteral spasm and the large dilated ureter above, the catheter stayed in place only about fourteen hours. This operation was done under cocain, and, after its completion, the patient felt greatly relieved. From that time on her pain ceased; the chills and fever disappeared in a few days, and she gradually improved. The urine after the one lavage of the pelvis became perfectly clear.

Realizing the danger of recontraction, we told the patient that she would have to have repeated dilatations. After this the orifice was dilated every three or four days; but, in spite of my attempts at dilatation, the ureteral contraction got ahead of me and there was still slight intravesical ballooning, so I decided to resect this whole area of obstruction and the cyst. The operation done was similar to the previous one with the exception that the balloon was caught with a small volsella and the resection was done with curved scissors. This went beneath the mucous membrane and the specimen removed showed muscle-fibers.

The patient gradually regained her health. In fact, she felt better and was stronger than ever before. She gained 15 pounds in weight, attended to her household duties and to her social functions, and her only complaint was an occasional feeling of fulness in the right kidney region. She was again put on colon vaccines. She has been free from bladder symptoms and has had no fever since. I examined the patient by cystoscopy in June, 1912. At this time I found no intravesical ballooning. A No. 7 catheter passed easily. She still had a mild colon infection of her right kidney.

The cessation of symptoms was not due to the fact that the kidneys were not secreting, which Albarran has suggested is the cause of some of the cures, for I obtained urine of fair quality from this kidney, and a functional test of phenolsulphonephthalein showed it to be excreting one-half normal.

The patient remained perfectly comfortable until November, 1912, when she began to have some intermittent fulness in the kidney region, which was of slight consequence. The cystoscope at this time showed slight evidences of ballooning. The patient had a large ventral hernia, which her surgeon repaired. He also removed the kidney, which was small and atrophic, there being but slight pelvic distention. It was thought best to remove it as the patient did not want to run a chance of having any further trouble. She is now perfectly well.

CASE 2.—Mrs. G., aged 42, complained of incontinence of urine, marked vesical distress and aching fulness in the right kidney region. The patient had been perfectly healthy until five years previously, when she was suddenly seized with an attack of pain in the right side. This was pronounced renal colic. Following this she passed a small, irregular stone; she remained well for two years, when she had a similar, but more severe, attack which terminated with the passage of a stone. She remained well until one year before I saw her, that is, two years ago. Then she began to complain of attacks of increased frequency of urination, trouble in starting the stream and pain at the end of the act. These attacks lasted for several days; they would then subside, only to

recur. They became much more frequent. Two months before admission the patient suddenly had a retention, but finally voided with difficulty. Six weeks before I saw her she began to wet her clothes and also to wet the bed at night. Besides this she also had frequent desire to urinate, marked straining and tenesmus and voided but small quantities of urine. She passed no blood and had no chills or fever, but suffered from an aching sensation in the right kidney region.

On examination the patient seemed in good physical condition. Cystoscopy revealed an intermittent leakage of urine from the urethra and on close inspection a mass was noticed within the urethra about ¼ inch from the external orifice, which became larger and smaller. By stretching the urethra with a speculum a small opening at the tip of this mass was observed, from which the urine was escaping. A catheter was inserted and this mass was pushed into the bladder. The bladder was filled and had a normal capacity. The cystoscope showed a normal bladder wall. The left ureteral orifice was normal. On the right side of the trigon there was a long finger-like mass projecting toward the left side and extending down to the internal orifice of the bladder. This mass intermittently dilated and contracted. At the time of its dilatation it crowded against the internal orifice of the bladder. On the tip of this was a small irregular orifice of the ureter.

A procedure similar to the one utilized in the previous case was employed. The balloon was grasped with a tenaculum and given to an assistant. The curved scissors which had previously been inserted were then taken, and under the guidance of the cystoscope the whole balloon was resected, the denuded area being about an inch in diameter. There was some bleeding, but hot irrigation and epinephrin promptly checked it. Three days later a catheter was passed easily through the orifice. The patient in the meantime had been thoroughly relieved of her vesical distress. There was no leakage of urine, and the fulness in the right kidney region of which she had complained ceased.

Since the operation I have seen the patient on several occasions; she has been perfectly free from pain, and has had no incontinence. There has been no return of the ballooning and a No. 7 catheter passes freely. In this case I did not do a catheterization or functional test, as the operation was done at her first visit to my office.

CASE 3.—Miss T., aged 42, was seen first in consultation April, 1913. She complained of increased frequency of urination. The patient had been perfectly healthy until several years previously, when she had an attack, somewhat similar to the present attack, which lasted a few weeks and subsided on internal medication. She was comfortable until a year ago, when she began to have markedly increased frequency of urination, voiding every fifteen or twenty minutes and arising three or four times at night. Her physician at this time found by cystoscopy a markedly ulcerated bladder which suggested tuberculosis; one ulcer was located around the right ureteral orifice. She had many specimens of urine analyzed for tuberculosis, but no bacilli were found. The trouble was pronounced a colon infection. The patient had no symptoms referable to the kidney.

The bladder capacity was 150 c.c. Cystoscopy showed a marked trigonal congestion with numerous ecchymoses, particularly around the left ureteral orifice and at the bladder dome. There was a healing ulcer about half an inch back of the right ureteral orifice. In the region of the right orifice there was a typical ureteral vesical cyst, which at its largest was about the size of a cherry. The orifice was small and situated at the tip of the balloon. The balloon pointed downward toward the midline. After much manipulation a No. 5 catheter passed through the orifice. The left ureter was easily catheterized with a No. 6 catheter. The kidneys were found negative, and the patient's physician is endeavoring to cure her cystitis. She has promised to return in order to allow me to determine if there is any dilatation of the upper urinary tract and later to resect the cyst if necessary.

CASE 4.—Mr. Z., aged 26, single, complained of pain in the right side and increased frequency of urination. He had complained of this pain in his side for one week, but of the slightly increased frequency of urination for several months. By cystoscopy in May, 1911, I found a tuberculous bladder with ulceration around the right ureteral orifice. The right orifice showed a small intermittent dilatation which, at its largest, was about the size of a cherry. The orifice, which was irregular and scarred, pointed mesially, and a thick, ropy material exuded from it. A No. 5 catheter passed through the left orifice easily. The left urine was normal. The urine showed a normal phenolsulphonephthalein output. From the right side there was practically no secretion owing to the plugging of the catheter with pus. There were numerous tubercle bacilli. I did a nephrectomy two days later from which the patient made a nice recovery. Two months after operation there were no evidences of ballooning, but the orifice was flabby.

CASE 5.—Mrs. M., aged 46, widow, complained of frequent urination. The patient sent to me for cystoscopic examination. She had a rectocele which her surgeon was about to repair. She had had no symptoms referable to her kidneys whatever.

Cystoscopy showed the bladder capacity normal, marked trigonal hyperemia, but no ulceration. The left ureteral orifice was normal. On the right side of the trigon there were two ureteral orifices. The upper and outer orifice was normal. The lower orifice blew out as a small cyst about the size of a cherry and then retracted to the bladder level. The orifice was at the tip and centrally poised. Clear urine was emitted slowly at the time of the ballooning. A No. 5 catheter passed through this opening, and a No. 6 through the upper opening. The lower catheter passed higher than the one which entered the upper ureteral opening. A No. 6 catheter passed easily into the left ureteral orifice. Urine from all three orifices was clear and uncontaminated.

The patient was advised to have a shadowgraph catheter passed and pyelography done; she consented, but unfortunately failed to keep her promise, and neither her surgeon nor I has seen her since. I cannot blame the cystoscopy for this, as she suffered no pain.

CASE 6.—Sister M., aged 29, was sent to me by her surgeon for a cystoscopic examination and ureter catheterization. Roentgenoscopy showed a large kidney with many shadows and the patient presented a characteristic history of renal retention and vesical irritability. Her left kidney was enlarged and tender, and she had suffered from intermittent chills and fever.

Cystoscopy showed a general subacute cystitis. The right ureteral orifice was normal in appearance. On the left side of the trigon an intermittent ballooning was observed. This ballooning was pyriform, and when it protruded it ran obliquely downward and inward and followed the outer margin of the trigon for about half its distance. The ureteral orifice was small and irregular, was situated above and external to the cyst and was uninfluenced by the swelling of the balloon. From it projected a worm-like purulent mass. The orifice seemed to occupy a fixed position, the dilatation going below it. A No. 6 catheter passed with difficulty, but no urine could be collected owing to the thickness of the pus. Urine from the right side was normal and showed an excessive phenolsulphonephthalein output, 62 per cent. for one hour.

The patient's surgeon did a nephrectomy, but on account of my not having seen the patient since the operation I cannot report further regarding the cyst.

A summary of the features of interest in these six cases is as follows: The ages ranged from 26 to 46 years. Five of the patients were women and one was a man. Five of the cysts were located on the right side, one on the left side. One was associated with double ureter and seemed to be the only case which could be definitely classified as of congenital origin; the other five cases presented evidences sufficiently clear to allow them to be tabulated as acquired abnormalities. Of these five cases, one was secondary to a ureterovesical anastomosis; one resulted from inflammatory changes around the ureteral

orifice secondary to tuberculosis; one appeared in the course of a long-standing calculus pyonephrosis; one presented the history of the passage of two stones from the kidney; and the last, the most recent case, was secondary to a healed ulcer around the orifice due to a colon cystitis. It seems convincing, therefore, that not all ureterovesical cysts are congenital, as some authors state; on the contrary, they seem more frequently to be acquired.

Two of the cysts were large, three were about the size of a cherry, and one—a pyriform cyst—was the size of an almond. Four of the cysts were round, one was elongated and finger-like, the other was pyriform. The ureteral orifice was located at the tip of the cyst in three cases, toward the midline of the bladder in one case, and at the outer and upper part of the cyst in two cases. The orifice was influenced by the motion of the cyst in every case but one. In this case it was located above and external to the cyst and held a fixed position, the cyst blowing out along the lateral margin of the trigon below the orifice. The cyst wall was studied pathologically in two cases (Cases 1 and 2). In Case 1 the cyst wall was composed of two mucous layers, ureter and bladder, with an intervening connective-tissue and muscle-fiber layer. In Case 2 there was no muscle fiber between the two mucous layers.

All these cases presented symptoms of vesical irritability, such as increased frequency of urination and pain. In none of them was there blood. In Case 2 there were symptoms of obstruction and at one time there was complete retention. This case also offers a most interesting symptom-complex, the history being similar to a paradoxical incontinence, such as is seen in the male with prostatic obstruction. I have been unable to find a similar case in the literature in which the incontinence was due to cyst situated intra-urethrally with the orifice of the ureter located just within the external urethral opening. Cases of incontinence have been reported, but these have been due to faulty insertion of the ureter into the urethra. In three of the cases there was pyonephorosis behind the obstruction; in one a hydronephrosis. The other two presented no evidences of renal involvement.

I wish to direct your attention especially to the treatment of this disease. Two of the cases have remained untreated; one is of recent date and the patient has promised to submit to an operation later. The other, the congenital case, I have not seen since my first examination. Two of the patients have undergone nephrectomy, one for tuberculosis of the kidney, the other for a calculus pyonephrosis. The ureterovesical cyst had entirely disappeared, following the nephrectomy for tuberculosis. The patient on whom the nephrectomy was done for calculus pyonephrosis, I have not seen since the operation, which was done by another surgeon.

The operation which was employed in Cases 1 and 2, the total resection of the cyst under the guidance of the cystoscope, is a method which seems to offer very satisfactory results. One of the patients remained well for a year without evidences of obstruction. The other patient has remained perfectly well for two years and has a patent orifice through which a No. 7 catheter passes easily. There has been no suggestion of recontraction or of balloon formation, nor has there been evidence of obstruction in the upper urinary tract. In the first case the operation was done as an emergency to relieve a large pyonephrosis. At the time I did not think that the result would be so lasting, as I feared that the orifice would recontract in a short time.

The endovesical operations which have been employed have consisted merely in slitting the orifice of the ureter; but all the observers who have utilized this method have reported rapid reformation of the stricture at the orifice, as occurred in Case 1 with the first operation. Several authors state that this slitting operation is a difficult procedure. I must say, however, that even the resection of the cyst under the guidance of the cystoscope was executed simply and offered no particular obstacles. In the male the removal could be done by means of rongeur cystoscope.

The suprapubic operations, whether slitting the orifice longitudinally with suture of the two mucous surfaces, or the circular amputation of the cyst with suture of the two surfaces, or the hernia operation employed by Young in his case, are more extensive and more radical procedures and possibly offer better curative results. I am of the opinion, however, that the chances of recontraction are about as great with these methods as in the procedure which was employed in my two cases of total resection with denudation of a large area around the ureteral orifice. The results in these cases seem to show, at least, that the procedure may offer relief for two years or more; and I think that since the operation is a minor one, done without general anesthesia, and is simple in technic and devoid of danger, it should be the operation of choice in many cases. The endovesical slitting operation offers no permanent benefit, and the suprapubic method seems a bit too radical as the initial operation in most cases, particularly in women.

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UNTOWARD RESULTS OF NEPHROLITHOTOMY *

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HISTORY

The first references as regards the practicability of nephrotomy were traced by Henry Morris[1] to the early French medical literature (Camerarius and Roussett in 1581). During the next two centuries the feasibility of renal incision in nephrolithiasis was repeatedly discussed on theoretical grounds by various writers, particularly of the French school (Ducledat and Consinot in 1622, De Lafitte in 1753), but was not put into practical use, probably on account of Hévin's indictment of surgical interference in stone-kidney (1753). The influence of this famous monograph was of such weight as to retard for more than a century any further practical progress, in spite of the strong plea made by several writers of that period in favor of early incision (Gerdy 1829, Rayer 1849).

The feasibility of nephrotomy for the extraction of renal concrements was, toward the end of the nineteenth century, almost simultaneously discussed by several prominent British surgeons (Sir Thomas Smith, Annandale, Spencer Wells in 1870) and actually carried out for that purpose by Bryant, Lente, Barbour, and also by William Ingalls in this country.[2] Thus, according to Dickinson's tables,[3] nephrotomy was done during the

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. For more detailed historical references see Henry Morris's Hunterian Lectures for 1898, on renal surgery.
2. Ingalls: Boston Med. and Surg. Jour., Oct. 8, 1882.
3. Dickinson: 1885, iii.

next ten years in about half a dozen cases of advanced pyonephrosis of calculous or tuberculous origin, in four of which concrements were extracted.

The merit, though, of first having incised the apparently healthy parenchyma of a kidney for the purpose of extracting a concrement, belongs to Henry Morris, who on Feb. 11, 1880, successfully removed a mulberry calculus weighing 31 grains from the undistended, and, to the naked eye, quite normal kidney of a young woman.[4] This operation, which its author termed nephrolithotomy,[5] quickly gained in popularity, especially since le Dentu in 1888 devised effectual control of hemorrhage by exact approximation and suture of the cut surfaces of the renal parenchyma, and particularly since Tuffier in 1889 showed that the usual incision, used for post-mortem examinations, was connected with the least lesion of vessels and the least destruction of renal perenchyma.

Noteworthy is, furthermore, Zondek's[6] modification of renal incision, commencing about 1 cm. posteriorly from the convex border and thence continued in a forward direction, as giving ready access to the renal pelvis and calices, without destroying more than a narrow strip of renal parenchyma and thus facilitating the extraction of concrements.

OPERATIVE RESULTS AND MORTALITY

The operative results obtained with nephrolithotomy have been very satisfactory at the hands of the great majority of renal surgeons. This operation has been, for the last twenty or twenty-five years, the method of choice for the removal of calculi in nephrolithiasis. Israel[7] considers nephrolithotomy by far superior to any other procedure as regards obtaining ideal operative results and according to Kümmell[8] nephrotomy is the most appropriate and, at present, most popular method for the removal of concrements from the dilated pelvis and calices.

Mortality.—The mortality of nephrolithotomy is, according to collected statistics from the clinical centers of the world, less than 4 per cent. for aseptic and moderately infected stone-kidneys; the operative mortality, though, of infected or pyonephrotic stone-kidney is high, and is estimated by some authors to be 20 per cent. and over. The mortality of 222 cases, 135 of which were aseptic and eighty-seven infected, collected by Watson and Cunningham,[9] was 2.2 and 18.3 per cent., respectively.

HEMORRHAGE AFTER NEPHROLITHOTOMY

The most important objection to and the greatest danger of nephrolithotomy is hemorrhage, which may occur either during or after the operation. Hemorrhage during the operation is a very serious occurrence which has, not infrequently, forced on the operator the removal of an otherwise intact kidney. Though hemorrhage occurring at the operating-table rarely, if ever, will prove fatal at the hands of the resourceful surgeon, it is particularly postoperative hemorrhage which lends to nephrolithotomy an almost ominous aspect. Such an accident may occur within a few hours after the operation, as in the following case:

Case 1.—A young man of 21, with bilateral moderate renal pyuria, showed radiographically in both kidney-regions characteristic stone-shadows of almost identical size and shape. On account of the slight functional inferiority of the right kidney, this organ was at first incised and a coral-shaped urate calculus removed. Careful suture was made of the cut surfaces of the parenchyma in the usual manner. The patient left the operating-room in good condition. About eight hours later, shortly after an attack of vomiting, uncontrollable hemorrhage from the lumbar incision set in, to which the patient succumbed before medical aid could be applied.

The post-mortem examination, which had to be confined to the kidneys, did not reveal any palpable cause for the sudden hemorrhage. A calculus of identically the same size and shape as that of the right side was, at the post-mortem table, easily extracted without any lesion of renal parenchyma, through a posterior pyelotomy incision of the left kidney.

Hemorrhage from the nephrotomized kidney does not, as a rule, assume such a sudden and rapidly fatal character immediately after the operation. I can find only one case reported by Neuhäuser[10] from Israel's clinic in which acute hemorrhage set in within twenty-four hours and in which, in spite of quickly applied appropriate treatment (tamponage of kidney), death occurred twenty-eight hours after nephrolithotomy. Much more frequent, on the contrary, is late hemorrhage, which occurs several days or even weeks after the operation, occasionally preceded by moderate or insignificant bleeding into the bladder or the wound, which may stop for a while, only to return with unexpected force, and may then prove fatal, as in the following observation:

Case 2.—Man of 41, luetic infection and chronic alcoholism admitted; moderate arteriosclerosis; left-sided renal pyuria; many larger and smaller characteristic calculi shadows in left lumbar region. Marked functional deterioration on left side. Nephrolithotomy was followed by very satisfactory convalescence during the first week. Slight hemorrhage from the wound on the eighth day, which soon stopped without treatment. Three days later, without warning, abundant hemorrhage set in. The patient was rushed to the operating-room where nephrectomy was performed. Death occurred within three hours from onset of hemorrhage.

The examination of the removed kidney showed a chronic pyelonephritis with interstitial changes. Necropsy was refused.

Similar occurrences are reported from Israel's clinic,[7] who, beside the case already mentioned, lost three other patients from late postoperative hemorrhage. Pleschner[11] reports from Casper's clinic three cases of postoperative hemorrhage after nephrotomy. In one case fatal hemorrhage occurred four days after the operation; both other patients could be saved by secondary nephrectomy, which in one instance had to be done thirty-three days after the operation. Bevan[12] has had four or five cases of hemorrhage, among them one fatal case. In two cases hemorrhage into the bladder, after the kidney wound had healed, was so severe as to necessitate secondary nephrectomy.

The etiology of postoperative or late hemorrhage after nephrolithotomy is not clear. It is certainly not dependent on the size of the incision; most abundant hemorrhage, on the contrary, was observed in instances in which a small incision had been made. P. A. Müller[13] considers arteriosclerosis one of the main etiologic factors. Syphilis and a general tendency to bleed (hemophilia) are of etiologic importance. For a number of cases Neuhäuser's[10] explanation appears plausible, according to which separation of cut surfaces of the kidney with consecutive hemorrhage may follow distention of the renal pelvis due to blocking of the ureter through a

4. Morris, Henry: Hunterian Lectures, 1898, p. 6.
5. Unknown to Morris, this term had been used over 100 years ago by Hévin in his monograph.
6. Zondek: Arch. f. klin. Chir., 1899, lix.
7. Israel: Chirurg. Klin. d. Nierenkr., 1901.
8. Kümmell: Ztschr. f. Urol., 1908, ii, 351.
9. Watson and Cunningham: Diseases and Surgery of the Genito-Urinary System, 1908.
10. Neuhäuser: Fol. Urol. V, No. 5, p. 360.
11. Pleschner: Ztschr. f. Urol., 1910, p. 371.
12. Bevan, G. D. THE JOURNAL A. M. A., Feb. 26, 1910, p. 666.
13. Müller, P. A.: Ztschr. f. Urol., 1910, p. 371.

blood coagulum. This explanation seems to fit my second case. Noteworthy is the fact that all fatal cases of hemorrhage recorded in the literature, including my own, were observed in men, demonstrating again the greater resistance of women to loss of blood.

Therapeutically, internal remedies (stypticin, gelatin, epinephrin) are of little or no value. Tamponage of the kidney is practiced at Israel's clinic and has yielded there better definite results than secondary nephrectomy. Albarran[14] has abandoned intrarenal in favor of extrarenal tamponage, which he claims to be effective without possessing the disadvantages of the former method (sepsis, secondary hemorrhage in removing gauze pads). Removal of the bleeding organ is, according to the majority of authors, the safest method; it is the *ultimum refugium,* which, when permissible by the condition of the other organ, should be carried out without delay.

PERIRENAL INFECTION AND SEPTIC NEPHRITIS

Perinephritis of more or less gravity and extension may follow nephrolithotomy done on an infected stone-kidney. Perirenal infection, as a rule, starts in the wound, which, in spite of all precautions, will become contaminated with septic material from the incised kidney; rapidly the loose tissue around the kidney becomes involved and especially the indurated and poorly nourished fatty capsule offers a fertile soil for the infection, which in patients with low resistance may spread to the peritoneum. The most prominent symptoms of this septic peritonitis are marked meteorism and paralysis of the bowels. Albarran describes such a case[15] and I have recently made a similar observation.

CASE 3.—Man of 33 with very severe right-sided and moderate left-sided pyuria; marked deterioration of function of right kidney. Characteristic calculi shadows in both kidney regions. Operation revealed horse-shoe kidney, with advanced pyonephrosis of its right half. No line of cleavage between both renal halves. Calculi of the size of olive-pits can be palpated in both halves of kidney just above the renal pelvis. Nephrolithotomy with drainage by rubber tube on right side; removal of calculus of left side by small pyelotomy incision.

The patient rallied well from the operation. During the first few days his temperature was about 99 F., his pulse between 90 and 100 and of fair volume, his general condition satisfactory; bandages were always very wet and several ounces of urine were removed from his bladder by catheter. On the fourth day meteorism set in, which increased rapidly. No bowel movement could be obtained in spite of laxatives and high enemas. Death occurred on the seventh day under symptoms of general sepsis (high temperature, rapid and small pulse, singultus, nausea, bronchitis).

Important items of the necropsy report are: Peritoneum hyperemic and covered with thin shreds of fibrin in a few places; transverse folds of small intestines in some places covered with grayish pseudo-membrane; hyperemic spots in cecum; both lungs contain many greyish-red bronchopneumonic spots in posterior part of lower lobes. Tissue around kidney shows hemorrhagic infiltration. Marked parenchymatous degeneration of liver.

A different result could have possibly been obtained in this case by primary removal of the pyonephrotic half of the horse-shoe kidney.

Graver than perirenal infection is that of the operated organ itself, which results in a septic nephritis. Albarran[16] gives a good description of the symptomatology of this condition (irregular temperatures, severe pyuria, general malaise, etc.), which almost always ends fatally under the symptoms of a systemic urosepsis. It is not advisable to lose valuable time with expectant or palliative measures (laxatives, diuretics, antiseptic irrigations, vaccine therapy). Removal of the diseased organ constitutes the only effective, and, in some instances, life saving treatment.

FISTULA

Nephrolithotomy for infected stone-kidney is, as a rule, followed by urinary fistula of shorter or longer duration. Such fistulas may, as every surgeon with experience in renal work will admit, occur in spite of faultless operative technic and persist many months, or even years. They are due to retention of septic material in the kidney or its pelvis, and to imperfect drainage. After the removal of one or more concrements from a pyonephrotic kidney, the patient is left with a constantly secreting, suppurating sinus which leaves him an invalid, makes existence miserable and may even be a serious menace to life. The healing of such a fistula that the patient has carried about for many years, is not infrequently coincident with total loss of the anatomic and functional value of the organ operated on, as in the following observation:

CASE 4.—A man of 42 with bilateral pyonephrotic stone-kidney underwent left-sided nephrolithotomy over seven years ago, resulting in a suppurating fistula, which persisted more than three years, but finally healed spontaneously. At the first cystoscopic sitting after closure of the sinus, only a very small amount of urine could be collected from the left kidney, which, on examination, demonstrated the almost complete loss of function of that organ. On several cystoscopic examinations during the last three years no characteristic spurt was visible, nor could any fluid be obtained from the left ureter. The patient, though, is able to continue in his arduous business with his only functionating right-sided pyonephrotic stone-kidney.

While closure of postoperative fistula may follow expectant or conservative local treatment, secondary nephrectomy is, nevertheless, in many instances, the only effective means of relieving the patient from his distressing condition; it should be performed without too long delay, especially in cases in which the function of the remaining kidney is known to be satisfactory.

PYELOTOMY AND PRIMARY NEPHRECTOMY VERSUS NEPHROLITHOTOMY

It is thus apparent that there exist extended limitations to the general application of nephrolithotomy. The operation possesses obvious advantages (preservation of the kidney operated on, good view of renal calices and pelvis, comparatively small functional impairment). Its various immediate and remote untoward results, however, have gradually turned the tide toward other and less dangerous surgical procedures, for which the development and perfection of radiography and the various functional kidney-tests permit, at present, strict preoperative indications. Thus posterior pyelotomy has been advocated, of late, by many European surgeons as the operation of choice for the extraction of stones situated in or near the pelvis of aseptic or moderately infected stone-kidneys. In this country the attitude of most surgeons toward pyelotomy is more conservative. I recommended[17] the operation for suitable cases several years ago, and Eisendrath,[18] in a recent noteworthy publication, considers it destined to become an active competitor with nephrotomy in the majority of cases.

14. Albarran: Médecine opératoire des voies urinaires, p. 164.
15. Albarran: Ibid., p. 167.
16. Albarran: Ibid., p. 166.
17. Krotoszyner, M.: Trans. Am. Urol. Assn., 1908.
18. Eisendrath, D. N.: THE JOURNAL A. M. A., April 12, 1913, p. 1145.

While pyelotomy is applicable only for the comparatively small group of aseptic and moderately infected cases, primary nephrectomy ought to gain more and more ground as the simplest, safest and quickest curative method for advanced pyonephrotic stone-kidneys in which the other organ is found to be functionally and anatomically intact. By being able to formulate preoperative indications for nephrectomy, the possibility arises of removing a pyonephrotic sac without opening it during the operation for inspection; thus quick closure of the wound is obtained and rapid convalescence and complete cure ensues. Bevan[12] reports improved results in his work on infected stone-kidney because he has recognized more than formerly the necessity of doing a primary nephrectomy. Kümmell[19] reports twenty primary nephrectomies for pyonephrotic stone-kidney without death, and among twenty-four nephrotomies for the same condition three fatalities and eight secondary nephrectomies. At Israel's clinic[20] the operative mortality for nephrotomy in infected cases was doubly as large as that of primary nephrectomy, 11 against 22 per cent. The indications for primary nephrectomy can, moreover, under certain conditions be extended to bilateral stone-kidney, especially in cases in which the burden of renal function is known to be carried by one organ only and in which the patient through a quicker and simpler operative procedure is at once relieved of an anatomically and functionally useless organ.

CONCLUSIONS

1. Nephrolithotomy is connected with serious immediate and remote untoward results.
2. It should be, wherever feasible, replaced by posterior pyelotomy.
3. Nephrectomy is the simplest, quickest and safest curative method for pyonephrotic stone-kidney, provided the function of the other organ is satisfactory.

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THE IMPLANTATION OF THE URETERS INTO THE LARGE BOWEL *

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During recent years the problem of implanting one or both ureters into bladder, ureter or bowel has repeatedly been the subject of theoretical discussion and practical experiments, and conclusions have been drawn from the success obtained as to the possibility and expediency of this method.

The first one to undertake an implantation of the ureters into the intestinal tract was Simon, who in 1851 operated for an ectopy of the bladder by uniting the ureter with the rectal wall through a tight knot, which cut through and produced a communication between ureter and rectum. For two months the patient passed urine through the rectum, but then the anastomosis became very narrow, the urine escaped through the fistula, and the patient died.

In 1879 Theodore Smith of St. Bartholomew Hospital published in the hospital reports an account of a case in which he implanted both ureters into the colon; the patient, however, died. In 1891 Kuester of Marburg resected the whole bladder for a cancer and implanted the ureters into the rectum, also with fatal result. The first successful operation of this kind was performed by Chaput, whose patient lived for thirteen years. Gluck, Zeller, Bardenheuer and Novarro made experiments on animals. Morestin, Harvey Reed, Boari, Peterson, Martin and Zeit have all devoted a great deal of study to these questions in experimenting on lower animals as well as in operating on human beings.

There is, however, a great difference in operating on the lower animal and on man, since in the dog, for instance, the ureter is very small and thin and the bowel quite coarse, so that a union is not so easy as a similar union in a human being. Nevertheless a comparatively large number of good results have been obtained in animals and, though not a large number, several cases have been recorded in which the results of such transplantation in human beings have been successful. Chaput in 1910 records besides his own case, in which the patient lived for thirteen years, the case of Chalot's patient who lived for one year, of Guinard's who lived for five years, Michaud's who lived for two years, Auvray's for fifteen months, Boari's for six months, Fowler for three and one-half years, Peterson's for ten months, Beck's for seven months (which is, however, a mistake, since he lived eighteen months) and Martin's for eighteen months.

The indications for performing such an operation are rather rare. The principal indications are (1) injury of the ureter, in which it cannot be sutured again or implanted into the bladder, (2) fistula of the ureter, (3) painful cystitis (cystitis dolorosa, Trendelenburg), (4) total cystectomy (Kuester) and (5) ectopy of the bladder (Simon).

After Simon, Maydl has done more than anybody else to popularize the operation for the last indication, since he has had a number of successful results. But, on the whole, these operations have not gained an enthusiastic following on account of a great many drawbacks, principally the infection of the kidneys secondary to the operation and the difficult control of urination. Guyon and Albarran have shown, however, that an infection of the kidney does not necessarily follow an ascending infection of the ureters.

The methods of implantation of the ureters which have been used are mainly four:

1. After the first discovery of the bad consequences of the ordinary implantation and after Maydl's experiments a part of the bladder was taken along with the ureter for implantation, and good results have thus been obtained. This method, however, is not possible except in case of exstrophy and perhaps cystitis dolorosa.

2. The method of Chaput is the direct union of the wall of the ureter to the wall of the bowel. This method has been successful, but it is the one which endangers the union most of all. Peritonitis may follow this method very easily, since it is difficult to prevent a pulling out of the sutures by the action of the bowel or by infection.

3. Boari's method makes use of a small button, which is very similar to the Murphy button in its principle. A case in Giordano's clinic has shown, however, that concretions can form in that button.

4. The last method consists of the oblique implantation of the ureter into the bowel by a procedure such as Witzel has described for the oblique gastrostomy, sewing a catheter into the stomach-wall. Krinsky has described a method of oblique implantation of both ureters into the rectum with a flap-operation which is done by sewing

19. Kümmell: Ztschr. f. Urol., 1908, ii, 349.
20. Israel: Chirurg. klin. d. Nierenkr., 1901, p. 368.

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

a flap of peritoneum and external muscle over the implanted ureter. Fowler has given us a method for flap-operation, in which the flap is made of the wall of the bowel.

The oblique method is one which I have used in my cases of implantation with this difference, however, that I have allowed the ureter to dangle with its free portion into the lumen of the bowel. I had the idea that the infection would be prevented by such a procedure, and,

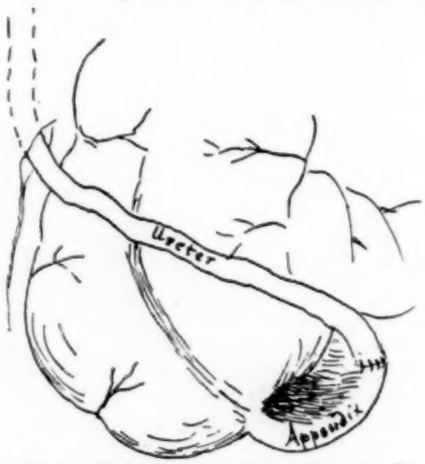

Fig. 1.—Ureter anastomosed with appendix.

furthermore, that the lumen would not be included in a cicatrix of the bowel and therefore would remain patulous. I must say, however, that my first case showed that only one lumen remained patulous and that the other was very much constricted. It seems, nevertheless, that the portion of one ureter hanging down into the bowel has either become gangrenous or has retracted.

The records show that the results obtained by various surgeons differ widely, and therefore the question, whether or not this operation is possible and expedient, is not yet solved. Each case bearing on the subject, whether successful or not, ought to be reported in order to give sufficient material for a decision as to whether implantation should be made use of or dropped. We have to consider this matter from two different points of view: first, with regard to the technical part and then with regard to the pathologic changes following the operation. If the ultimate result is unfavorable, we can call this operation only a palliative one which ought to be rejected, if the danger connected with it is in disproportion to the benefit which might be derived from it. In this case, though the operation be ever so simple technically, it will not acquire a place in surgery.

Unfortunately the above-mentioned consideration is often neglected, and a success is reported before the process of healing has ended. This, of course, perplexes the critical observer. Maydl's experiments were made years ago and certainly are the most important ones, because they were made by so careful and competent a surgeon. But his cases are throughout cases of exstrophy of the bladder of a particularly simple nature, his patients having been in good health in every other respect.

I will not enter into the details of the literature, but the description of two typical cases, which have been closely watched, may be welcome.

Case 1.—*Patient.*—A. F., aged 27, cigar-maker by trade came to me for the first time fourteen years ago in order to be treated for an obstinate disease of the bladder. He came from a family predisposed to tuberculosis (I had operated on his brother for a tuberculous fistula of the rectum) and had been weak from infancy. In early childhood he suffered from poliomyelitis, which caused a paralysis of one leg. When 20 years old he was operated on radically by Dr. J. B. Murphy for a pararectal abscess; a high dissection alongside the intestine, between bladder and rectum, had been necessary. It is not certain, but possible, that the affection of the bladder which I am going to describe originated from the rectal tuberculosis.

Present Illness.—Fourteen years ago the patient was troubled with a permanent strangury, which from time to time caused hematuria. The intervals between such attacks were sometimes but a few minutes. The examination of the urine showed a small amount of albumin and a great many pus-cells and led to the conclusion that there was a tuberculous cystitis. The cystoscopic examination gave a positive result. The bladder-wall was entirely covered with tuberculous ulcers. After a thorough reflection I advised drainage of the bladder above the symphysis, which was then done. When the cystotomy was made, the bladder proved to be badly infiltrated and without any active contractility; the walls were rigid and covered with tuberculous ulcers. I curetted the tuberculous masses thoroughly and drained the bladder for some time through a tube. The patient recovered visibly and for some months was in good condition. Gradually, however, all the bad consequences of a long drainage of the bladder appeared. The urine produced an obstinate eczema of the abdominal wall and of the scrotum, and the patient asked urgently for relief. I could not decide on recommending exclusion of the bladder, and I sent him for three months to the county hospital, where through rest and lying on the back he was cured of the eczema but retained his fistula. Finally I advised him to have the bladder excluded and the ureters implanted into the bowel, and this operation was done Jan. 10, 1899.

Operation.—I shall not enter into the particulars of a technical description, but I wish to state that I used a method which I had devised especially for this operation. I put the patient in Trendelenburg's position, isolated both ureters, cut

Fig. 2.—Ureter passing obliquely into the large bowel hanging with its free extremity into the cavity.

them across not far from the bladder and on the right side implanted the ureter into the cecum, on the left side into the sigmoid flexure. The peritoneal covering of the bowel was removed with a flap of the muscular coat of the bowel, then the bowel was opened obliquely and the ureter was drawn far enough into the lumen with a thread to insure its dangling there. The opening of the ureter was made wide by slitting it open to one-quarter of an inch, then the peritoneal flap was carefully sutured over the implanted ureter. I

imagined that I could in this way avoid the two main drawbacks observed after all implantations, namely, stricture of the orifice of the implanted ureter and infection from the bowel; for the free ureter-end, the orifice of which had been obliquely split, could not shrink, and infection starts from the granulation at the spot of the implantation of the ureter into the bowel or at the stitch-holes.

Postoperative History.—My patient recovered after a rather long illness and was perfectly well from this time on to the day on which he entered the hospital again, that is, during a period of eighteen months. It was of great physiologic interest that the periods during which he could control the urine gradually grew longer and longer, that he did at times separate the discharge of feces from the urine, that he was able to hold the urine in the bowel during a whole night, and that the urine discharged was at times absolutely clear. During these eighteen months he had no trouble whatsoever which would point to an affection of the kidneys until precisely the time when he came back to the hospital, and even then the lung-trouble outweighed the kidney-trouble, so that till the end I was not sure whether he died from tuberculosis of the lungs or from tuberculosis of the kidneys.

The pathologic changes have been carefully examined, the case itself has been closely observed clinically and post mortem, and the observations made might be of use for the determination of the question, when, if ever, a transplantation of the ureters is indicated.

Necropsy.—Patient is emaciated; his panniculus has disappeared almost entirely. An opening of the head has not been permitted. Mouth and pharynx are absolutely normal; so are the larynx and the trachea; in the trachea masses of bloody, colored mucus are found. Both apices of the lungs are emphysematous and the pleurae of both sides are totally adherent to the chest-wall. The right lung is permeated with old tuberculous scars and callosities and the left lung shows many symptoms of a recently rapidly progressing tuberculosis. Some of the caverns are connected at points. The abdominal viscera show the most interesting changes. The liver is hypertrophied and amyloid, the gall-bladder very much dilated but otherwise normal. Stomach and intestine show no sign of tuberculosis, not even in the part through which the urine was flowing. In the region of the sigmoid flexure are hard peritonitic adhesions, which date from the operation. The kidneys show the worst changes. Neither of them can be palpated, because the entire fatty capsule is badly infiltrated, and even after a slight dissection it is evident that both kidneys are surrounded by an extensive peritoneal exudate with multiple abscesses. The pus is yellow and thick and shows the signs of a cold abscess. The right kidney is partly normal; on other parts it shows macroscopic changes of acute and chronic inflammation. On this side the ureter and the pelvis of the kidney are fairly normal. The left kidney is almost entirely transformed into necrotic tissue, so that the normal borders of the kidney and the pelvis can no longer be discerned. The ureter of this side is much distended and following it up to the bowel we see that the orifice is almost obliterated. The sigmoid flexure is open in the region where the ureter has been implanted, and, besides a few very small tuberculous and cheesy degenerated lymph-nodes, does not show any symptom of tuberculosis or any sign of irritation. The mucous membrane of the bowel is not normal in appearance; in color and luster it looks rather like the mucous membrane of a bladder. The right ureter is still dangling free down into the lumen by one-quarter of an inch. The projection of the left ureter has disappeared and the opening can be found only with difficulty with a fine sound. At its orifice are concretions of urates. The bladder seems to have shrunk entirely and is contracted to a small nodule almost without any lumen. The microscopic examination of both kidneys, so far as the tissue could be plainly discerned, shows, besides an amyloid degeneration, a bad infiltration of the interstitial tissues with quantities of bacteria and cocci. The microscopic examination of the ureter shows no tuberculosis. The microscopic examination of the bowel below the place of the implantation shows a strange transformation of the epithelium into a pavement epithelium very much broken up on the surface.

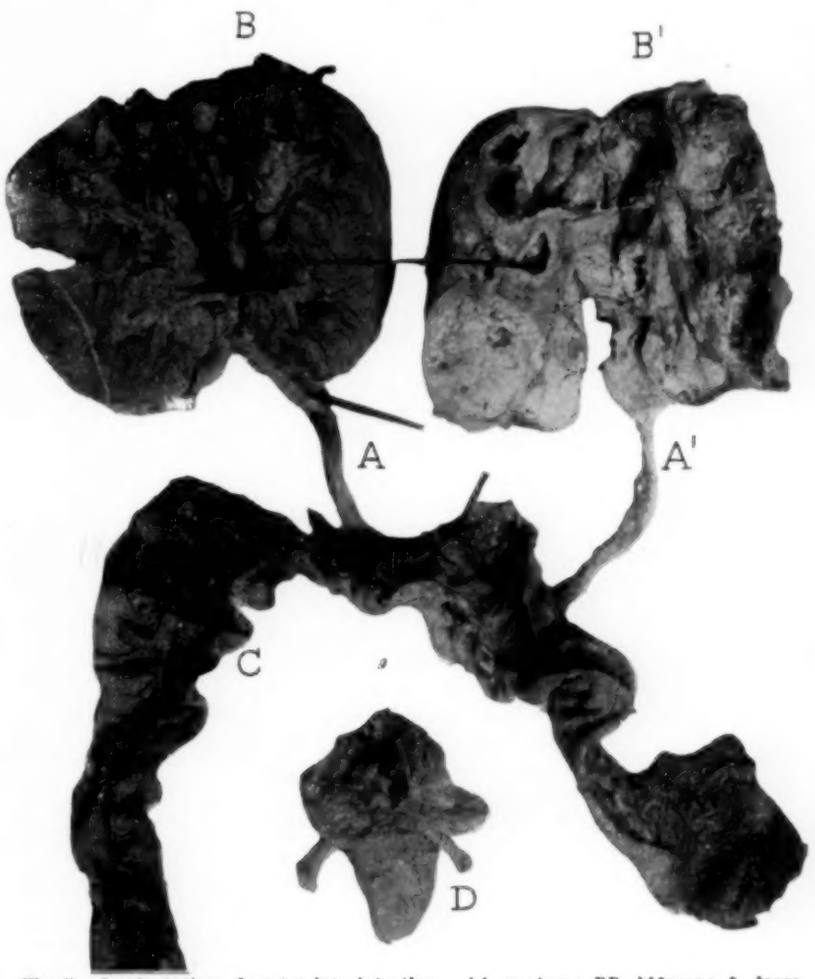

Fig. 3.—Implantation of ureter into intestine. *AA*, ureters; *BB*, kidneys; *C*, large bowel; *D*, bladder. About 3/16 actual size.

I waited many years for a chance to repeat this interesting operation for a similar indication. Last year the following case in my practice seemed to me to indicate at least a temporary transplantation of the ureters.

CASE 2.—*Patient.*—Mr. S., 60 years of age, was a packer in a crockery house. For the last sixteen years he had suffered from bladder-symptoms, which indicated either a stone in the bladder or an enlarged prostate. He had frequent urinations; occasionally his stream was interrupted suddenly and he had to strain; he also had to get up nights frequently; he suffered pain. The examination showed the prostate not much enlarged but a chronic hyperplastic cystitis; there was no stone in the bladder. But a roentgenogram revealed distinctly a stone of the size and shape of a nickel either encysted or in the left ureter.

First Operation and Results.—I decided to make a suprapubic cystotomy, and I found that the stone was contained in the left ureter about one inch above its orifice in the bladder. The ureter had to be split for that distance, and the stone was removed. It was noticed that a good deal of granulating tissue formed the bed of the stone. The patient did not make a very good recovery. It was interrupted by chills and fever and suppuration of the cavum retzii. He did not pass any urine in the natural way; the fistula had no tendency to close. During the following months several attempts were made to close the fistula and lead the urine the normal way but without success.

Second Operation and Results.—I decided, therefore, that the prostate, though it was not very much enlarged, must be the cause of this trouble and removed the prostate by an infrapubic cystotomy, draining the bladder downward and hoping for closure of the fistula of the abdomen. For a short while it seemed as if we would succeed, but only for a short while. Suppurations came again on the abdomen and the sinus caused the patient a great deal of trouble. Again I tried an excision of the sinus and closure of the bladder, but without success. In this time—about two years since the first operation—the bladder had become rigid and hard and could not retain regularly more than one ounce of urine, though at times, with much pain, the patient could distend it to hold several ounces.

Third Operation and Results.—I decided to make a last attempt; but when I had dissected down to the mucosa I found it so covered with ulcers and stony concretions that I thought the wiser plan would be to transplant the ureters, temporarily at least if not permanently, into the bowel and give the bladder a chance to heal out and to close, and, if it should do this and make a permanently closed viscus, to reimplant the ureters afterward. The man was in good health but unable to endure the flowing of urine over his abdomen or to wear a tube for drainage.

The operation was performed in a similar manner to that in the first case, except that the right ureter was implanted into the appendix. The man recovered promptly and has so far been able to control his urine for a couple of hours at a time. He is at least free from the molesting constant discharge of urine and the eczema. The fistula of the bladder is closing down at the time of writing this paper, and the bladder seems to be healing.

CONCLUSIONS

I considered this process of temporary transplantation analogous to temporary gastro-enterostomy for an ulcer of the stomach or duodenum.

Though only the short period of a few months has elapsed since the implantation in the second case, I am inclined to believe that this patient also will in course of time develop pyelitis; but his bladder may have a chance to recover and become a healthy viscus, and a reimplantation of the ureters may be made into the bladder, if he does not prefer the present tolerable condition.

In cases of tuberculosis of the bladder a permanent implantation made into the bowel is only palliative, but the method of free-end implantation of the ureter or the implantation into the appendix insures a longer period of freedom from pyelitis than any other. I think that it is even possible to implant both ureters into the appendix.

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Ureteric or Vesical Calculus.—Now it is a fact which has long since been accepted that a stone lodged in the ureter just near the bladder evokes all the symptoms of stone in the bladder, in addition to those symptoms which arise in the kidney from ureteric obstruction. There is the same frequency of micturition, the same tenesmus, the same meatal pain in juxtavesical ureteric stone as in vesical stone.—Hurry Fenwick, in (London) *Clinical Journal.*

THE REPAIR OF DEFECTS OF THE URETER *

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The surgeon is often confronted with a case in which a normal functionating kidney might be saved if a portion of the diseased ureter could be removed and the defect corrected either by some form of anastomosis of the severed ends or by substituting another structure for the removed segment of the ureter.

Anastomosis of the two ends has been seldom successful in the human being, when the ureter was divided either accidentally during operation or by injury or intentionally during the removal of a diseased segment. The various methods which can be employed for an anastomosis of the severed ends are (*a*) end-to-end, (*b*) end-to-side (Van Hook), and (*c*) invagination methods (D. Antona). Of these the ingenious method of Van Hook seems the most rational. It is superfluous to quote the technic here, since it is so well illustrated and described in all of the standard text-books of surgery. Owing to the tortuous course and elasticity of the human ureter, it is possible to unite the ends even though there is a gap of 3.2 inches (Von Bergmann). Experiments on dogs and results in human beings show that the Van Hook method of invaginating the proximal end into a slit on the lateral wall of the distal end gives the most satisfactory results of any method of anastomosis.

I have not considered, in this paper, the various methods of reimplantation of the proximal end of the cut ureter into the bladder or bowel. It is a well-recognized fact that one can resect the ureter close to the bladder or to the kidney and reimplant the corresponding end into another portion of the bladder or into the renal pelvis and thus save the kidney with perfect maintenance of its function. Reimplantation of the ureter into the bowel is impracticable on account of the irritant action of the urine on the mucous membrane causing persistent diarrhea and on account of the frequent occurrence of ascending infection.

The thought has occurred to many surgeons who have been obliged to resect a ureter either on account of its involvement in malignant disease or owing to a stenosis that, if some structure could be transplanted, the vitality of which would be maintained until union had occurred, the ureter could be resected and the corresponding healthy kidney saved. The structures which have thus far been employed with this object in view are (*a*) segment of an artery, (*b*) segment of a vein, (*c*) segment of the horn of the dog's uterus (fallopian tube), and (*d*) segment of the bowel or vermiform appendix. One fact favors the implantation of a segment of other structures, namely, that the ureter has within its own walls a rich vascular supply and that, although it is completely separated from surrounding structures, the vitality of the ureter is readily maintained. I shall briefly enumerate the names of those who have attempted to solve this problem and the structures employed as grafts between the two ends of the severed ureter.

1. Floercker, Melchior, Domenici and Tietze employed segments of arteries and veins.

2. Fenger and Bacon, Poggi and Tizzoni, D'Urso and DeFabi, Esou and Moskowicz employed loops of intestine, excluded

* Read in the Section on Genito-Urinary Diseases of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

* From the Department of Experimental Surgery of the Morris Institute for Medical Research, Chicago.

from the remainder of the bowel, but still attached to their mesentery.

3. Gionnettasio, Rydygier and Frank transplanted the appendix, attached to its mesentery, but separated from the rest of the bowel.

4. Floercker, Stubenrauch, D'Urso and DeFabi used the long horn of the dog's uterus.

5. Casati, Boari and Van Hook used a flap of the bladder in the form of a tube, the upper end of which was sutured to the ureter.

The results in all of these cases may be divided into three groups: In the first, the flap became necrotic and general peritonitis resulted. In the second group of experiments, the proximal end of the ureter became adherent to the abdominal wall and a urinary fistula resulted. In the third group, the transplanted segment survived, but gradually became converted into connective tissue with resultant stenosis and hydronephrosis. The results in all of these experiments were uniformly unsuccessful. The reason for the difference in results obtained in transplanting a segment of blood-vessel into another blood-vessel and those obtained by transplanting the various structures just enumerated into the ureter can be explained according to Domenici and others by the following two hypotheses: (1) The blood circulating in the vessels will nourish the endothelium of the transplanted piece, while in the ureter the transplanted piece will become necrotic, lacking the circulating nourishing blood, before sufficient communications have been formed between the transplant and the ureter walls; or, (2) the necrosis of the transplanted piece of arterial or venous vessel can be caused by the difference in function of the ureter and blood-vessels, as the latter will not adapt itself to the new function. I thought that if we could secure as a free transplant a portion of the bladder, completely separated from the rest of the bladder, and insert this graft between the two ends of the divided ureter, we would thus secure a structure of which the lining membrane was accustomed to the presence of urine and thus less apt to undergo cicatricial changes.

The technic employed after a few preliminary trials was the same throughout the twelve experiments. The ureter was easily exposed through a pararectal incision. The entrances of the ureters into the bladder of the dog are easily found, the bladder itself being mobile and extending far up into the abdominal cavity like a pedunculated ovarian cyst. The fundus of the bladder was grasped by two fine artery forceps, and a portion of the fundus about 1 inch wide and 2 inches long severed from all connections with the remainder of the bladder. The bladder was then closed with two rows of fine chromic gut sutures.

In the insertion of this suture in the bladder the operator must exercise great care not to include the ureters in the suture. The trigone in the dog's bladder is long, the ureteral orifices lying some distance from the internal meatus and much nearer the vertex than in man. The ureter was divided transversely and a segment 1 inch long removed, and the severed ends temporarily clamped in order to prevent escape of urine and blood into the peritoneal cavity. It is usually necessary to ligate several of the periureteral vessels, especially at the distal end of the ureter. No attempt was made to bring the ends of the ureter into accurate approximation with the ends of the transplant owing to the great difference in the size of the lumen of the divided ureter and that of the tube formed by uniting the edges of the transplant. The method employed for bringing the ends of the ureter in contact is well shown in Figures 1 and 2. The ends of the ureter, both proximal and distal, were split and the ureter fastened to the interior of the wall of the transplanted bladder segment by several chromic gut sutures passing through the entire thickness of the wall of the transplant and tied on its outer aspect. A tube was then formed by suturing the edges of the transplanted bladder segment with one row of chromic gut through and through and a second seroserous row of fine arterial silk. In order to prevent the retraction of the ureter from the interior of the transplant, several chromic gut sutures were inserted through the walls of the ureter and transplant, above and below the entrance and emergence of the ureter (Fig. 2).

The results obtained can be divided into the same three groups as those of the previous investigators.

Fig. 1.—Method of inserting two severed ends of ureter in cuff of detached bladder flap.

Fig. 2.—Exterior view of ureter shown in Figure 1.

First, in several of the dogs the proximal portion of the ureter became adherent to the abdominal incision and a urinary fistula was established. Second, in six dogs the transplantation segment of bladder became necrotic before union had occurred between the ends of the ureter and the transplant, with subsequent leakage of urine and general peritonitis. The third group includes those cases in which the graft survived at least temporarily, but when the dogs were examined from four to six weeks after operation it was found that the transplanted bladder segment had contracted and had become converted into a mass of cicatricial tissue. The opening of the proximal end of the ureter was greatly narrowed so that the lumen at this point was reduced to a minimum. From this point upward the ureter was greatly dilated and there was a moderate degree of hydronephrosis.

The results, therefore, of my experiments, using free segments of bladder, are practically the same as those of other investigators who have employed segments of blood-vessels, bowel, appendix and uterine horn.

CONCLUSIONS

1. One can transplant portions of the bladder to take the place of segments of the dog's ureter.

2. These transplanted segments will preserve their vitality even though they have no vascular connection with the bladder.

3. It is immaterial whether the divided ends of the ureter are brought into exact end-to-end approximation with the transplant or are sutured to its inner surface in the manner described.

4. Even though the bladder mucous membrane is accustomed to the presence of urine, it will undergo cicatricial changes in the same manner as other structures, as artery, vein, appendix, bowel, horn of uterus, which are lined with endothelium or mucous membrane, not accustomed to presence of urine.

5. Even though union of the transplant occurs, it soon becomes transformed into connective tissue drawing the two ends of the ureters together with resultant stenosis of the ureter and hydronephrosis and hydroureter.

I wish to thank Dr. James W. Jobling for many courtesies.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KROTOSZYNER, CAULK, EISENDRATH AND BECK

DR. G. G. SMITH, Boston: I should like to ask Dr. Caulk what anesthesia he used in removing these ureterovesical cysts in the bladder.

DR. V. D. LESPINASSE, Chicago: In some of my experimental work I have tried to replace the ureter with a segment of vein or artery. When I have done that in the blood-vessels, taken a segment out and put it back, there has been a change, and the tissues have become fibrous. The endothelium seems to remain intact, but the muscularis degenerates almost completely, and there is a stiff, rigid tube conducting the blood. When a vein or an artery was used as a ureter I had great trouble in securing a tight union. The work was done in the summer time, in August, and all my results in that line were failures.

In regard to Dr. Krotoszyner's paper: In hemorrhage from the kidney I have used a powder (thrombokinase) that is made from blood-serum and from extracts from certain organs, lungs and livers. I first hash up the organs and make a watery extract, and then precipitate with acetic acid. I have used that on a papilloma of the bladder which I curetted, and then impregnated gauze with this powder and packed the bladder. The result was ideal; the bladder was dry when the packing was removed. One of my friends used it in a case of hemorrhage from the kidney. He made an emulsion and injected this into the pelvis of the kidney. The hemorrhage from the kidney stopped. Whether it was due to the powder or not I do not know. Locally, on birthmarks and external bleeding surfaces, this ferment works nicely.

After you have tried these local measures and have succeeded in checking the hemorrhage or removing the kidney, the patients have sustained an enormous loss of blood, and transfusion is often necessary. Deaths in these cases are due absolutely to loss of blood, and it is surprising what can be accomplished by replacing the blood. The patients respond quickly. No patient should be allowed to die without attempting a direct transfusion of blood.

DR. D. N. EISENDRATH, Chicago: I do not quite agree with Dr. Caulk in the statement that the majority of these ureterovesical cysts are of acquired origin. That may be his personal experience, but the number of reported cases of congenital and acquired ureterovesical cysts is not yet large enough to state absolutely whether the congenital or acquired form is the more frequent. Up to the present time we have always been inclined to think that the congenital type was the more frequent, because we have just begun to discover these things through the cystoscope and recognize their nature.

I reported a number of cases of congenital stenosis which were recognized clinically, and a number which we had observed in the dissection of fetuses. One case of the typical congenital variety was of special interest; that of a little girl of 12, who had an enormous congenital dilatation of the lower end of the ureter. She presented the typical symptom of urinary retention to which Dr. Caulk referred. It was thought that she had a large ovarian cyst. On examination we found a dulness above the pubes in the median line, and every attempt to catheterize her would be resented, so that we were not able to make an examination and postponed the cystoscopic examination, not suspecting that this swelling was retention of urine. I made a median incision and found a distended bladder, the ureters being about the size of the thumb and both kidneys being hydronephrotic sacs. When we opened the bladder it looked as if there were a bladder within a bladder. The internal meatus was not obstructed, but evidently the ureterovesical pouch had pressed against it and caused retention. The left ureteral orifice was represented by a little pit, and above this a very much distended ureter was found by incising the mucous membrane of the bladder. I had never encountered anything of this kind and did not know at first what to do, but decided on the method which Dr. Caulk mentioned. We united the mucous membrane of the bladder with the mucous membrane of the ureter, and in that way obtained a good-sized opening. Everything progressed well for three months; but we were obliged to intervene a second time on account of persistent high temperatures. We examined the kidney of the same side and found it full of little abscesses, namely, an ascending pyelonephritis. We removed this kidney. The patient lived five months and died of uremia. The necropsy specimen showed a marked hydronephrosis on the opposite side and a hydroureter. This case had been one of ureterovesical cyst that had filled the entire lumen of the bladder.

Dr. Krotoszyner's paper is timely. He speaks about one hemorrhage occurring eight hours after operation. That is very early. The majority of these cases of secondary hemorrhage are due to the fact that thrombi which have formed become dislodged, the vessels open up again and hemorrhage results. In one case we dissected the specimen and found that there was free communication between an open vein and the area into which the drainage tube had been inserted. This is one of the chief reasons for postoperative hemorrhage, the pressure of drainage material on the open segments of vessels.

Another point brought out was the importance of primary nephrectomy for infected kidneys, provided the other kidney is able to do the work of both. The fibrous adhesions around the kidney, which we have tried to save when it was extensively destroyed by pus infection, are firm and dense. If the opposite kidney can do the work, or if the case is not a bilateral one, a primary rather than a secondary nephrectomy ought to be done.

DR. O. S. FOWLER, Denver: I should like to discuss Dr. Krotoszyner's paper from the point of view of insufficient diagnosis of stone, or orientation of the stone in the kidney. While I was an intern I observed seven cases of exploratory operations of the kidney, or rather operations on the kidney for the removal of stone, in which the stone shadow had been demonstrated clearly and there were evidences in the urine of stone in the kidney. In all of these cases the kidney was laid wide open from one end to the other. My observation of these cases disgusted me with the method of the general surgeon in handling kidney-stone. If you orient the stone accurately in the kidney, know exactly what calix it is in, or if it is in the pelvis, then you are able in most cases to remove the stone without a mutilating operation on the kidney. You can make a small opening directly over it, or directly into the pelvis, or extending from the pelvis into the kidney substance. Therefore, if the diagnosis is made with

the aid of the Roentgen ray and collargol, we can locate the stone definitely. I do not believe that there is such a thing as a proper exploratory operation on the kidney. These procedures should be called mutilations. In the seven cases that I observed there were five cases of secondary hemorrhage sufficient to demand the removal of the kidney, and two of the seven patients died. There were over 70 per cent. of secondary nephrectomies following secondary hemorrhage. That sort of result was entirely unnecessary. I do not doubt that some hemorrhage will follow occasionally if the stone is entirely oriented and the smallest amount of destruction of the kidney done at the time of the operation, but I do not believe that, as has been said, a primary nephrectomy is advisable or necessary in these cases if a proper diagnosis is made.

DR. HUGH CABOT, Boston: It is only within a few years that our attention has been directed to this condition. The difficulty lies in determining which of these cases are primary and which are secondary, which are congenital and which acquired. My own experience has been limited to six or seven cases, in all of which there was secondary disease of the kidney on one or both sides. We recognize that obstruction of some kind is at the bottom of the vast majority of our kidney lesions of an inflammatory nature, and this seems to me to explain the high percentage of kidney involvement in these cases of cystic change in the lower end of the ureter. I am inclined to regard them as due largely to a congenital fault of some kind, in many of which secondary changes in the kidney overshadow the changes in the ureter in such a way as to create the impression that they are acquired.

I was interested in Dr. Caulk's operation, because it is the only endovesical operation likely to give relief. I think that he has correctly estimated the slitting of the ureter as a temporary matter. The suprapubic operation is applicable to the more extensive cases. In one of my cases the cystic dilatation was nearly 3 inches in diameter, and I do not think that I could have managed that with an intravesical operation.

With Dr. Krotoszyner's paper I am largely in agreement. Dr. Fowler has laid stress on an important point; we should know where the stones are before undertaking their removal. In cases in which extensive damage has been done to the kidney, we should consider, and in most cases I believe should decide on, a primary nephrectomy. These pus-sacs full of stones are not of value to the patient. They are a constant source of worry and discomfort, and not an uncommon source of hemorrhage. I think that the danger to which the patient is exposed by keeping an old kidney warrants its removal. Our serious difficulty must come in cases of bilateral stones with extensively damaged kidneys on both sides. In a few of those cases nephrolithotomy will be necessary, but that is the only class of cases in which it is justifiable. The operation of pyelotomy is best in most cases. There are a few cases in which a stone is in the upper calix and can be reached through the cortex. I believe that when we do a nephrolithotomy through any considerable amount of kidney tissue we shall get hemorrhage, and the prevention lies in the careful study of the case and the adoption of better operative methods.

DR. LOUIS E. SCHMIDT, Chicago: I agree with what Dr. Cabot and Dr. Eisendrath said with regard to the origin of these cysts, in spite of the fact that the cases reported by Dr. Caulk appeared to have been acquired. I am inclined to believe in an open operation, a thorough removal and the slitting up of the ureteral orifice. In one case in which I did this operation, the ureteral orifice remained wide open and gaping months afterwards without any apparent discomfort to the patient. Naturally, one must first consider whether infection is present or not, because the operative procedure might be entirely different. These intravesical operative procedures are naturally minor in character, but I do not believe that they can reach an obscure condition so thoroughly as the open operation does.

I am in perfect accord with what has been stated in Dr. Krotoszyner's paper. Hemorrhages undoubtedly follow as soon as eight hours after operation. It is possible that only a few have been recorded, but I know of quite a few in which hemorrhage has taken place within twenty-four hours after the operation. I am inclined to believe that in those cases it is due to an error in the operative technic. Hemorrhages that occur days later are undoubtedly due to secondary conditions that follow operative interference. I am also in accord with what Dr. Cabot says, that when the question of operative interference arises, in well-diagnosed conditions, if it is possible to do a pyelotomy, many of these hemorrhages will be avoided, but the great difficulty comes in cases in which we are dealing with double-sided lesions. Three weeks ago I was obliged to operate on a person for stone with a badly infected kidney, on whom I had done a nephrotomy five or six years previously. At the time of the operation there was severe hemorrhage, but on thorough suture the hemorrhage stopped completely. In a case of this kind in which drainage is absolutely necessary, the operative interference is a matter of considerable importance. It is out of the question that a man could do a nephrectomy in a case of this kind; so there are certain chances that you must take when you are operating on a person with one kidney, and the same thing applies when both kidneys are badly damaged.

DR. WILLIAM T. BELFIELD, Chicago: In a fairly large experience I have never seen serious hemorrhage follow nephrolithotomy. This good fortune may be due in part to the fact that I insert drains to, but never into, the kidney. For it is now established that pressure of a tube tends to erode blood-vessels.

DR. JOHN R. CAULK, St. Louis: I am thoroughly in accord with what Dr. Belfield has said, not in regard to cases of high-grade calculous pyonephrosis, but cases of renal stone in comparatively clean kidneys. I do not see the advantage of draining a kidney of that type. I have had quite a number of nephrolithotomies, and I have been fortunate enough not to have had a primary hemorrhage, and I believe that it is due to the fact that I have not put a tube in the pelvis of the kidney. I believe that even after bisecting the kidney, if we can get thorough approximation with mattress sutures we shall not often have hemorrhage. I cannot see the advantage of using a drainage-tube in a comparatively clean kidney.

Of course, pyelotomy is the method of choice with stones which are accessible and which can be removed easily through the pelvis, but with a branching calculus which is filling the calices, without much pelvic dilatation, I do not see that pyelotomy can offer a good chance, and I believe that if a clean nephrotomy is done and the kidney opened as little as possible (enough for exposure) and closed thoroughly, the chances of primary hemorrhage will be slight and the best results will be obtained. Of course, none of us can guard against secondary bleeding.

DR. HUGH H. YOUNG, Baltimore: Dr. Caulk, I think, has brought up an interesting field of surgery. His suggestion that my cystoscopic rongeur might be used has been carried out in one case of an intermittent balloon about the size of a cherry. We are able to grasp the whole thing and bite it off. The patient had previously had severe attacks of pain and was entirely relieved by that destruction of the cyst. I think that it amounts to practically the same thing as an excision.

It has occurred to me that, in transplantations of the ureter, the preservation of life of the part of the ureter that projects into the bladder or rectum will depend a great deal on whether we try, in doing the transplantation, to preserve the artery which passes along the ureter. Many years ago in transplanting the vas deferens and bringing it out into the groin for treatment we found that, if we stripped it closely, it always sloughed, whereas in cases in which we preserved the artery it would remain alive, even when it projected an inch. It occurs to me that, in one of his cases in which the end of the ureter sloughed and the other did not, he stripped one too closely. Certainly, in the bladder, it is generally entirely satisfactory to leave the ureter free, and it does not seem to make any difference whether we cut it obliquely, split it up, or cut it squarely off.

Dr. Krotoszyner's remarks on hemorrhage are extremely interesting. If we could have a few more papers in which an honest portrayal of our troubles and bad results could be given, it would do much good. A man, not in good condition, in whom a branching stone was removed from the cortex of the kidney, had recurrent hemorrhages for four or five weeks after the operation. The wound had been abundantly packed, but every time we removed the packing he had a hemorrhage. The last hemorrhage, four or five weeks after the operation, was so severe that it was out of the question, apparently, to carry out a nephrectomy, and we took advantage of the presence of his daughter and did a transfusion. That immediately stopped the hemorrhage. Although the patient had a violent chill and a temperature of 108 F., he recovered rapidly.

In a recent pyelotomy which I performed, the stone, which was small, had a hook-like process which passed up around one of the vessels, and a fearful hemorrhage occurred when we were removing the stone. It was impossible to reach the vessel by clamp, so I ran in a liver-needle and obtained about half an inch of kidney substance and the hemorrhage stopped.

Dr. John R. Caulk, St. Louis: In regard to anesthesia: In the first case the slitting operation was done under cocain. The second operation on the same person, that is, the resection, was done without any anesthetic, and the third was done without any anesthetic at all. As a matter of fact, I have seldom used cocain in the last few years. You can get along just as well without any anesthetic. If you use an anesthetic and are a bit rough, you traumatize the urethra, and, if the catheterization or operative procedure lasts any time, you are worse off, because edema follows, whereas if you use no anesthetic you are more gentle. I do not believe in using an anesthetic unless there is a very irritable urethra, as in tuberculous cases, although I have catheterized ureters through several tuberculous bladders without any anesthetic.

It is pretty hard to state in the case of an elderly person whom you see for the first time with an inflammatory process whether or not it is congenital. But I was led to believe that these cases were acquired, as there was a definite pathologic inflammatory condition in the lower ureter, which, of course, might be secondary. In two cases I know that it was an acquired anomaly, because in the first case, the one following the ureterovesical transplantation, I performed cystoscopy on the patient, in order to determine where the leak was, two months before I found the cyst. At that time there was no cyst, but following the transplantation the cyst developed; in other words, it was a definitely acquired condition. The other patient was one who was examined by a competent cystoscopist, who said that the bladder was suspicious of tuberculosis, but that she could find no tubercle bacilli. At this time there was no ballooning at all, but there was an ulcer around the right ureteral orifice. When I saw the case there was no ulcer, but a scar and the ballooning, which the doctor said she was confident were not there at the time of her examination.

I have done the slitting operation only once, and the condition immediately recurred. The endovesical operation for resection of the balloon is easy in women, if small instruments and a straight cystoscope are used. The results in these two cases have convinced me that they might be quite lasting—in one case one year and in one case two years. My experience in plastic operations on the ureter and bladder has not been particularly good, and I believe that, if one denudes a large area and allows it to granulate slowly, his chances of recontraction are not much greater than following an open operation, and, if he should have trouble later, he can do the major work, but let him give the patient a chance for the minor procedure first.

Dr. M. Krotoszyner, San Francisco: The wide discussion proves that the risks connected with nephrolithotomy are beginning to be recognized. Faulty surgical technic, I am sure, is not responsible for hemorrhage after nephrotomy, for accidents similar to my own are reported by the best technicians from all over the world. I fully coincide with Dr. Fowler in his demand for a careful preoperative study of every case of nephrolithiasis. A nephrectomy is, of course, only permissible on the basis of a painstaking cystoscopic and functional investigation, but wherever, under such conditions, a pyonephrotic stone-kidney was removed by me, the immediate and remote results of the operation were exceedingly gratifying.

STUDIES OF THE NECROSIS FOLLOWING INJECTIONS OF SALVARSAN AND NEOSALVARSAN *

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When salvarsan was introduced as a specific cure for syphilis its administration by deep intramuscular injections was strongly recommended. Wolbarst,[1] in 1912, stated that Ehrlich believed that "salvarsan is essentially an intramuscular injection," and if pain could be avoided this method would be the one of choice. Meltzer[2] showed that the intramuscular injections were absorbed more rapidly than the subcutaneous, but recommended the sacrospinal muscle rather than the gluteal as being less apt to cause pain and other complications. It was soon apparent, however, that the intramuscular injection of salvarsan almost uniformly produced intense pain; the wound healed slowly, and often was followed by large sloughing areas of necrosis which were extremely resistant to all attempts at aiding or producing complete repair. K. Martius[3] concluded that this method produced necrosis in every case in which it was used. Buschke[4] also stated the same fact and called attention to the numerous examples of slow healing necroses occurring in the gluteal muscles following their injection by salvarsan. Wise[5] proved that these lesions may follow the use of acid, alkaline or neutral solutions of the drug and to a lesser extent the use of paraffin or oil suspensions.

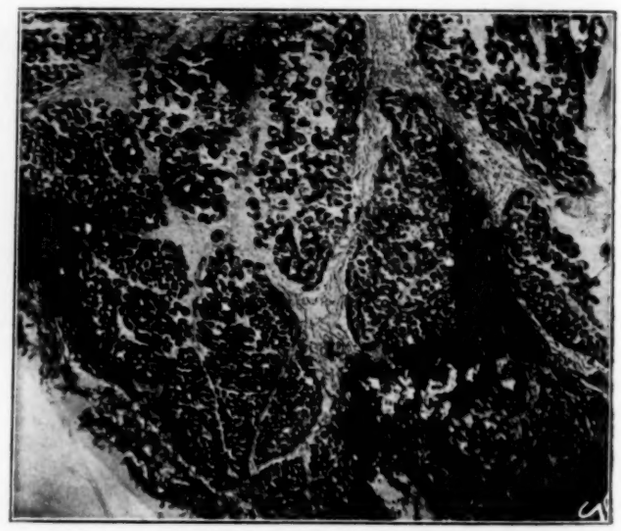

Fig. 1.—Salvarsan; eleven hours; necrosis; leukocytic infiltration. Dark mass represents salvarsan pigment. × 41.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

1. Wolbarst: Med. Rec., 1912, lxxxii, 148.
2. Meltzer: Berl. klin. Wchnschr., 1911, xlviii, 413.
3. Martius, K.: München. med. Wchnschr., Dec. 29, 1910.
4. Buschke: Berl. klin. Wchnschr., Jan. 1, 1911.
5. Wise, New York Med. Jour., 1911, xciii, 820.

The opinions quoted show in fact the almost universal experience of those who have used the drug by this method, and these facts have caused most clinicians to advise that the intramuscular route be abandoned in favor of the intravenous.

Lovejoy[6] and Sutton[7] each described the histologic appearances of tissue removed from the site of an intramuscular injection a few months later. They both found granules of salvarsan in the tissue and the smaller vessels and lymph-vessels blocked by these granules. To this fact they attribute the failure to heal. They each emphasized the absence of lymphoid cell infiltration.

Fig. 4.—Salvarsan; three days; thrombosis of vessels; salvarsan pigment at margins. × 41.

My work leads me to question the accuracy of these observations on the location of the salvarsan particles, which have never been found blocking the vessels, and I have also noted that lymphoid-cell infiltration is uniformly present in the later stages of the lesion.

Fig. 5.—Salvarsan; fifty-one days; localized area of necrosis with zone of leukocytes. × 41.

Tomaszewski[8] experimented on pigeons by injecting alkaline solutions, neutral emulsions and oil suspensions of salvarsan into the muscles. In all cases diffuse areas of necrosis appeared on the first day. Later these became walled off by a zone of leukocytes and then by newly forming connective tissue. Only a scar remained at the end of seventy days.

These results were fully confirmed by my experiments.

Slusher and Burchell[9] demonstrated that salvarsan has very weak if any antiseptic properties and that therefore strict aseptic precautions are necessary in its administration.

In spite of these well-recognized sequelae, however, the necessity of acquiring some degree of experience and technical skill has often proved a bar to the application of the intravenous method in the hands of many physicians, and, consequently, when the preparation called neosalvarsan was announced, its ready solubility in water and ease of preparation gave some ground for the belief that the easier method of intramuscular administration would again become the method of election in the majority of cases. This hope has not been fulfilled, although fewer reports of muscle necrosis are appearing in the recent literature, probably owing to the fact of the widespread adoption of the intravenous method.

Fig. 6.—Neosalvarsan; eleven hours; thrombophlebitis with degeneration of muscles. × 210.

Swift[10] while investigating the comparative absorption of arsenic following intramuscular injections of salvarsan and neosalvarsan found that both uniformly produced necrosis in the muscles of rabbits, but that salvarsan always caused the more intense reaction.

My own work was carried on for the purpose of making intensive studies of this peculiar type of necrosis and of observing (1) the effects of salvarsan on the muscles of animals compared with its effects on the muscles of human beings, (2) the effects of salvarsan compared with those of neosalvarsan, and (3) the effects of both of these drugs compared with those produced by deep injections of the more commonly employed mercurial preparations still used in the treatment of syphilis.

In the preparation of the salvarsan and neosalvarsan solutions for injection the directions given in the circulars accompanying the drug were closely followed and the size of the dose was governed by the body-weight of the animals compared with that of an average man. At various times the amount of the drug was purposely

6. Lovejoy: Jour. Cutan. Dis., 1911, xxix, 383.
7. Sutton: Boston Med. and Surg. Jour., 1911, clxv, 946.
8. Tomaszewski: Charité-Ann., 1911, xxxv, 569.
9. Slusher and Burchell: New York Med. Jour., July 15, 1911.
10. Swift: Jour. Exper. Med., 1912, xvii, 83.

slightly increased or diminished without, as far as could be observed, altering appreciably the extent or character of the lesion produced. Dogs were used for all the animal experiments and injections were made into the extensor muscles of the thigh in the hindquarter and the corresponding muscles of the shoulder in the forequarter. All injections were made only after partial narcosis by subcutaneous administration of morphin sulphate had been produced. Aseptic precautions were observed throughout.

The results of experiments with salvarsan and neosalvarsan are summarized in Table 1. This series developed several interesting facts:

1. The lesion in these cases consists of hemorrhage and necrosis with edema which develops almost immediately after the injection. Leukocytes early invade the tissue and tend to form a zone around the necrotic area.

2. Salvarsan invariably leaves a deposit of insoluble yellow pigment which acts in every respect as a comparatively inert foreign body.

3. There is no appreciable difference between the severity of the lesions which appear after the intramuscular injections of either salvarsan or neosalvarsan. If anything, neosalvarsan tends to give a slightly more diffuse zone of destructive inflammation.

Reparative processes begin in about a week, but the absorption of the necrotic material proceeds very slowly, and usually is not completed until a period of at least two months has elapsed. Infiltration of phagocytic endothelial cells and lymphocytes occurs in the later stages. Thrombosis of the venous branches is a very common finding and undoubtedly accounts for the tendency to sloughing and slow healing so often observed in human cases. Accidents, such as large hemorrhages and abscess formation, are possible. Although no data were secured as to bacterial infection, I do not believe that this is a common complication. When the injection accidentally was made into the intermuscular fascias, necrosis and other inflammatory phenomena were much less prominent, and recovery was correspondingly more prompt.

TABLE 1.—SALVARSAN AND NEOSALVARSAN IN MUSCLE

No.	Animal	Preparation	Site of Injection	Duration After Injection	Gross Appearances	Microscopic
1	AE-13-73	Salvarsan	L. shoulder	2½ hr.	Local hemorrhage; edema; yellow pigment from drug.	Hemorrhage; emigration of leukocytes; edema; muscle-fibers swollen and vacuolar with irregular staining and loss of striations; salvarsan pigment.
2	AE-13-73	Neosalvarsan	R. shoulder	2½ hr.	Ditto, except pigment is absent	Leukocytes more numerous; degeneration of muscles more pronounced.
3	AE-13-73	Salvarsan	L. thigh	11 hrs.	Wide-spread edema; area of hemorrhage and necrosis with yellow pigment.	Hemorrhage, necrosis and degeneration more advanced; much salvarsan pigment.
4	AE-13-73	Neosalvarsan	R. thigh	11 hrs.	Ditto, except pigment is absent.	Ditto, except pigment is absent and veins show beginning thrombus formation.
5	AE-13-115	Salvarsan	R. shoulder	1 day	Similar to No. 3.	Large amount of pigment; otherwise resembles No. 3.
6	AE-13-115	Neosalvarsan	L. shoulder	1 day	Necrosis and hemorrhage more marked than in No. 5.	Hemorrhage and necrosis very prominent; only slight leukocytic infiltration.
7	AE-12-7	Salvarsan	R. shoulder	2 days	Similar to No. 3.	Similar to No. 3.
8	AE-12-7	Neosalvarsan	L. shoulder	2 days	Similar to No. 6.	Extensive leukocytic infiltration; otherwise similar to No. 6.
9	AE-12-171	Salvarsan	L. thigh	65 hours	Edema less pronounced; hemorrhage and necrosis more localized; pigment present.	Beginning formation of zone of leukocytes; otherwise like No. 3.
10	AE-78-171	Neosalvarsan	R. thigh	65 hours	Similar to No. 9, except pigment is absent.	Similar to No. 9 except pigment is absent.
13	AE-13-115	Salvarsan	R. thigh	3 days	Similar to No. 9.	Similar to No. 9.
14	AE-13-115	Neosalvarsan	L. thigh	3 days	Development of abscess.	Extensive necrosis and leukocytic infiltration.
15	AE-12-7	Salvarsan	R. thigh	6 days	Similar to No. 9.	Localization of exudate; pigment present; beginning proliferation of connective tissue.
16	AE-12-7	Neosalvarsan	L. thigh	6 days	Similar to No. 10.	Old hemorrhage; proliferation of connective-tissue cells; localization of exudate about necrosis; no pigment.
17	AE-12-170	Salvarsan	L. shoulder	7 days	Extensive necrosis; abscess pockets.	Large areas of necrosis; masses of leukocytes; no bacteria found.
18	AE-12-170	Neosalvarsan	R. shoulder	7 days	Similar to No. 16.	Similar to No. 16.
19	AE-12-157	Salvarsan	R. shoulder	15 days	Large old hemorrhage; necrosis and pigment.	Localization of exudate; new connective tissue with fibroblasts and capillaries; many large mononuclear cells containing both salvarsan and old blood pigment; old necrotic muscle fibers surrounded by giant cells.
20	AE-12-157	Neosalvarsan	L. shoulder	15 days	Necrosis of fascia and adjoining muscle; induration.	Fresh fibrosis with thrombosis of several large veins; masses of leukocytes.
21	AE-12-170	Salvarsan	L. thigh	18 days	Localized area of necrosis with pigment and indurated margins.	Similar to No. 19.
22	AE-12-170	Neosalvarsan	R. thigh	18 days	Like No. 2 without pigment.	Zone of necrosis surrounded by zone of fresh fibrosis and at margins apparent proliferation of muscle nuclei.
23	AE-12-152	Salvarsan	R. shoulder	23 days	Similar to No. 21.	Similar to No. 19.
24	AE-12-152	Neosalvarsan	L. shoulder	23 days	Similar to No. 22.	Similar to No. 22 with addition of numerous lymphocytes.
25	AE-12-151	Salvarsan	R. thigh	24 days	Similar to No. 21.	Giant-cell formation around masses of pigment; phagocytic large mononuclear cells; advancing fibrosis.
26	AE-12-151	Neosalvarsan	L. thigh	24 days	Induration of fascia.	Fresh fibrosis in fascia; no changes in muscle.
27	AE-12-152	Salvarsan	R. shoulder	32 days	Pigment in fascia.	Fresh fibrosis; chronic changes in blood-vessel walls; lymphocytic infiltration; salvarsan pigment.
28	AE-12-152	Neosalvarsan	L. shoulder	32 days	Local area of necrosis with indurated margins.	Area of necrosis with zone of exudate and organization; arteriosclerosis; thrombosis of some vessels.
29	AE-12-172	Salvarsan	L. thigh	51 days	Old small area of necrosis.	Dense fibrosis; infiltration of lymphocytes; pigment masses in cells and tissue spaces.
30	AE-12-172	Neosalvarsan	R. thigh	51 days	Injection in fascia; few if any traces.	A few degenerated muscle fibers; otherwise no lesion.

4. Variations of the amount of the drug injected from one-half to twice the amount advised do not appreciably affect the extent of the lesion.

5. No changes in the general health of the animal could be observed, and there was no evidence of any

Fig. 8.—Neosalvarsan; thirty-two days; giant cells around muscle fibers. × 1300.

marked tenderness at the site of the injections and no apparent limitation of motion unless abscesses developed.

For purposes of comparison a second series (Table 2) was undertaken, using the mercurial preparations which are commonly employed for intramuscular injection in cases of syphilis. As may be seen in the table, the reaction is very similar, at least in its early stages, to that obtained with salvarsan and neosalvarsan. The results are, however, probably not quite so severe. Controls with distilled water and sodium bicarbonate show that this is an inflammation produced chemically rather than mechanically.

The results of injection of salvarsan into the muscles of human beings were further confirmed by the following two cases which came to necropsy:

CASE 1.—Mrs. W., aged 38, suffering from a supposed syphilitic destructive necrosis of the nasopharyngeal passages, received injections of salvarsan into the gluteal muscles of both sides eleven days before death. At the post-mortem examination these muscles showed areas of necrosis and hemorrhage, brown, and firm in consistence. Cross-sections of the affected muscle suggested the appearance of a large adrenal gland with brownish-yellow peripheries and grayish-white centers. The condition in the nose proved to be a destructive diffuse carcinoma with gangrene.

Microscopically, the lesion closely simulated that seen in the muscles of dogs at the end of one week. Extensive necrosis with degeneration of muscle bundles, edema and leukocytic infiltration were prominent features. Masses of brownish salvarsan pigment were abundant. Beginning proliferation of connective-tissue cells could be seen at the margins of the lesion. Several of the veins showed thrombosis.

CASE 2.—Mr. B., aged 40, suffered from a typical clinical attack of syphilitic myelitis. His blood gave a positive Wassermann reaction. Salvarsan was injected into the muscles of the chest wall four months before death. At necropsy, small, firm, scar-like masses of tissue were found at site of injections. These showed deposits of yellowish pigment. The typical lesions of a diffuse myelitis were clearly demonstrated.

Fig. 9.—Mercuric salicylate; three days; disorganization of muscle fibers; leukocytic infiltration. × 410.

Microscopically, there was extensive overgrowth of young connective tissue. Muscle fibers appeared in varying stages of degeneration. The tissue was diffusely infiltrated by lymphocytes and plasma-cells.

TABLE 2.—MERCURY PREPARATIONS IN MUSCLE WITH CONTROLS

No.	Animal	Preparation	Site of Injection	Duration After Injection	Gross Appearances	Microscopic
32	AE-13-6	Mercuric chlorid	R. shoulder	3 days	Areas of hemorrhage and necrosis; edema.	Hemorrhage; diffuse necrosis; degeneration of muscle fibers; infiltration of leukocytes.
33	AE-13-6	Mercuric cyanid	R. thigh	3 days	Hemorrhage in fascia.	No sections.
34	AE-13-6	Mercuric succinimid	L. shoulder	3 days	Similar to No. 32.	Similar to No. 32.
35	AE-13-6	Mercuric salicylate	L. thigh	3 days	Extensive hemorrhage, necrosis and edema.	Similar to No. 32.
36	AE-12-6	Mercuric chlorid	R. shoulder	5 days	Edema and necrosis.	Beginning localization of exudate around areas of necrotic muscle.
37	AE-12-6	Mercuric cyanid	R. thigh	5 days	Hemorrhage, edema and necrosis.	Hemorrhage; necrosis of muscle; no evidence of leukocytic invasion.
38	AE-12-6	Mercuric succinimid	L. thigh	5 days	Hemorrhage and necrosis.	Necrosis; a few leukocytes surrounding degenerated muscle fibers; basic staining masses of pigment.
39	AE-12-6	Mercuric salicylate	L. shoulder	5 days	Edema and necrosis.	Extensive necrosis; leukocytic infiltration; masses of basic staining pigment; beginning thrombosis of veins.
11	AE-12-171	5 per cent. sodium bicarbonate	L. shoulder	65 hours	No gross lesion.	No lesion.
12	AE-12-171	Distilled water	R. shoulder	65 hours	No gross lesion.	No lesion.

SUMMARY

1. Intramuscular injections of salvarsan and neosalvarsan uniformly produce severe destructive lesions which always heal slowly and often are complicated by hemorrhages and sloughing abscesses.

2. The severity of the reaction from the use of either drug is essentially the same.

3. Salvarsan always leaves an insoluble pigment which acts as a foreign body.

Fig. 10.—Mercuric cyanid; five days. Hemorrhage and necrosis. × 41.

4. Mercurial preparations when injected into muscles produce similar lesions.

5. The lesions produced by experiments on animals and in human beings are similar in every respect.

6. The use of such preparations in this manner in certainly the majority of cases is an unjustifiable procedure.

DECIDUAL REACTION IN THE APPENDIX IN INTRA-UTERINE PREGNANCY

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One of the most interesting phenomena observed in connection with both normal and ectopic gestation is the occurrence at various locations outside the uterus of tissue having a histologic appearance nearly or quite identical with that of decidua. It has been conclusively shown that the normal, intra-uterine decidua represents nothing more nor less than a transformation of the endometrial stroma, as a result of which the majority of the connective-tissue cells have become much swollen, and have assumed a round, oval or more or less polygonal shape. The cytoplasm often contains vacuoles, probably of glycogen; the nuclei also are somewhat swollen and vesicular, and often occur two or three to a single cell. The cells lie close together, but are separated by fine fibrous trabeculae; scattered among them are usually seen a few small, deeply staining, unchanged connective-tissue cells, the whole structure presenting a very characteristic and, for the most part, easily recognized appearance. The occurrence during pregnancy, at various points of the pelvic peritoneum, of small clumps and larger masses of cells possessing precisely similar characteristics has been observed and described by numerous authors. Located always just beneath the surface epithelium or endothelium, these extra-uterine decidual masses are found most frequently on the posterior surface of the uterus, at the bottom of the pouch of Douglas and on the anterior surface of the rectum; and somewhat less often on the anterior surface of the uterus, the posterior wall of the bladder, the surface of the tubes and small intestines and in the outer layers of the ovarian stroma; they have also been reported a few times in the omentum, and at least once each in a parovarian cyst, the vagina and the appendix.

First described by Walker[1] in connection with abdominal pregnancy, later by Dobbert[2] in a case of tubal pregnancy, the occurrence of this extra-uterine decidua coincident to normal, intra-uterine gestation was first demonstrated in 1895 by Pels-Luesden,[3] whose finding has since been confirmed by Schmorl,[4] Lange[5] and numerous other investigators. There can be no question of these little nodules representing anything in the nature of metastases from the endometrial decidua; they arise by a transformation *in situ* of the subserous connective-tissue cells, analogous to that occurring in the uterine mucosa, and it is almost always possible to demonstrate numerous intermediate stages between the small, unchanged, fixed connective-tissue cells and the large, fully developed, decidua-like ones.

So far as I have been able to ascertain, the occurrence of this reaction in the appendix has been observed in but one

Fig. 1.—Low-power drawing showing a group of decidua-like cells (*d*) in the thickened and much-inflamed serous coat of the appendix.

1. Walker: Der Bau der Eihäute bei Graviditas abdominalis, Virchows Arch. f. path. Anat., 1887, cvii, 72.
2. Dobbert: Beitrag zur Anatomie der ektopischen Schwangerschaften, Virchows Arch. f. path. Anat., 1891, cxxiii, 103.
3. Pels-Leusden: Beitrag zur pathologischen Anatomie der Puerperaleklampsie, Virchows Arch. f. path. Anat., 1895, cxlii, 1.
4. Schmorl: Ueber grosszellige (deciduaähnliche) Wucherung auf dem Peritoneum und den Ovarien bei intrauteriner Schwangerschaft, Monatschr. f. Geburtshe. u. Gynäk., 1897, v, 46.
5. Lange: Beitrag zur Frage der Deciduabildung in der Tube bei tubaler und intrauterine Schwangerschaft, Monatschr. f. Geburtsh. u. Gynäk., 1902, xv, 48.

instance, reported by Hirschberg[6] in 1905. His patient was a 38-year old multipara who was operated on for ectopic gestation, the right pregnant tube, with adherent appendix, being removed. Examination of the latter organ showed a marked periappendicitis, due, the author believed, to irritation from the blood discharged into the pelvis from the pregnant tube; in the deeper portions of the thickened serosa of the appendix were numerous large groups of typical decidual cells whose origin was evidently to be referred to the connective-tissue cells of that locality. Although in this instance the appendix was closely adherent to the gestation sac, Hirschberg ventured the opinion that the presence of such adhesions is not to be considered a sine qua non for the occurrence in the former of decidual reaction, but that this might, under some circumstances, take place also in connection with a left tubal pregnancy. That he was right, at least in the first part of this assumption, and that, moreover, decidual reaction can occur in the non-adherent appendix in connection with normal, intra-uterine pregnancy, is shown by the following case:

History.—Mrs. S., aged 37, was delivered of a full-term, living child under the care of her family physician, who had not seen her for several days before being called to attend her in active labor. He noticed that she seemed to complain somewhat excessively of pain and that her abdomen was rather tender, but otherwise the delivery was entirely normal. On revisiting the patient ten hours later, however, the doctor found her in very bad condition; the abdomen was enormously distended, and she was vomiting large quantities of stercoraceous material. As it was evident that some serious intra-abdominal condition was present, demanding immediate interference, she was removed to the Gynecean Hospital, where she was operated on by Dr. Theodore A. Erck about fourteen hours after delivery.

Operation and Result.—When the abdominal cavity was opened, a considerable quantity of free pus was found; the surface of the intestines was congested, dull, and in places covered with lymph, but there were practically no adhesions, the process being apparently too acute. The appendix was quickly located; it appeared acutely inflamed, but there were no evidences of adhesions. It was removed, and the wound closed with free drainage, but the patient was in a desperate condition throughout, and died early the next morning. No necropsy was performed.

Laboratory Report.—Grossly, the appendix[7] appears markedly inflamed and considerably thickened, measuring 6 cm. in length by 1 cm. in diameter; it is covered with lymph in places, but does not show any point of perforation. Microscopically, the wall is seen to be thickened throughout, and to be the seat of an acute inflammatory process, diffuse in type, but much more marked in the serous and mucous than in the muscular coats. The glands of the mucosa are dilated with mucus, and there is considerable infiltration, chiefly with eosinophils, throughout this coat. A round-cell infiltration of moderate degree is present in the submucous and muscular coats, but in the greatly thickened serosa the cellular infiltration becomes most intense, consisting here in large part of polymorphonuclear neutrophils, in addition to small round cells and eosinophils. There are numerous markedly congested capillaries just beneath the surface.

Scattered throughout this greatly thickened subperitoneal tissue are numerous groups of large, polygonal cells, which at once attract attention from their dissimilarity to anything ordinarily seen in the appendix. In some areas these large, very prominent cells show a more or less diffuse arrangement, making up practically the entire tissue, but for the most part they are collected into fairly definite groups, the majority of which are situated beneath the surface, one or two, however, projecting slightly above it. In the center of a few of the cell-groups are a number of good-sized, engorged capillaries, but in the majority these are wanting, the cell masses being for the most part compact, and showing no relation to blood-vessels. By suitable staining methods, a delicate fibrous network can be made out between most of the cells, and the entire arrangement is practically identical with that of ordinary decidua, although the development is nowhere so extensive as that regularly found in the endometrium (Figs. 1 and 2).

The situation of these cells stamps them as having arisen from the connective-tissue cells of the greatly thickened stroma of the serosa; nowhere is there any tendency for them to spread out in a sheet immediately beneath the surface, as would surely be the case had they arisen from the surface endothelium. A sharp differentiation between the decidua-like cells on the one hand and endothelial cells of the peritoneum on the other, which Hirschberg was able to demonstrate in his case, is impossible in the present instance, however, as the endothelium has been practically destroyed, and replaced by inflammatory tissue and lymph. The assumption that the large cells owe their origin to the inflammatory condition alone, irrespective of any influence from the pregnancy, does not seem justified, in view of their dissimilarity to anything ordinarily seen in connection with the various forms of appendiceal inflammation, but it is undoubtedly true that the presence of the active inflammatory process may have been a contributing factor, as will be pointed out later on. It certainly seems more probable that the presence of these cells in the appendix represents a true decidual reaction on the part of its stroma.

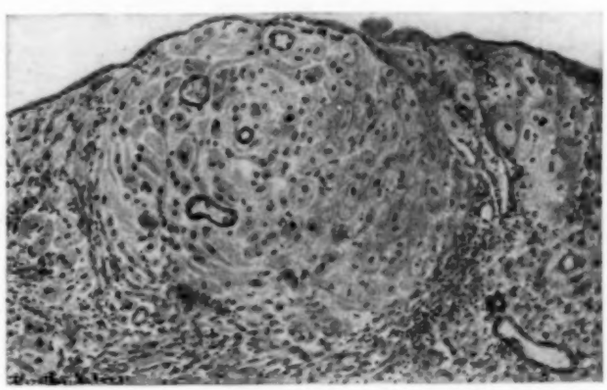

Fig. 2.—Higher-power drawing of the same group of cells.

In order to determine whether the apparent infrequency of decidua formation in the appendix might not possibly be due to its occurrence having been overlooked, I have gone through the collections of the laboratory of gynecologic pathology of the University of Pennsylvania and of the pathologic laboratory of the Gynecean Hospital, examining all appendixes which have been removed during the past few years in conjunction with ectopic or normal pregnancy. Owing to the fact that cases in which the appendix is removed under these circumstances are not very common, the series comprises but twenty-three specimens, one of which occurred in connection with an intra-uterine pregnancy, all the others with some form of tubal gestation. With but one or two exceptions, at least two sections of each appendix, taken from different portions of the organ, were carefully examined. Included in the series were appendixes which had been densely adherent to the tubal mass, and others in which no such adhesions had been present; there were normal appendixes, and specimens showing all the common types of inflammation, ranging from

6. Hirschberg: Deciduale Zellbildung am Wurmfortsatz bei Tubenschwangerschaft (Periappendicitis decidualis), Arch. f. Gynäk., 1905, lxxiv, 620.

7. Specimen was demonstrated before the Pathological Society of Philadelphia, Feb. 27, 1913.

slight catarrhal or interstitial changes to partial or complete obliteration or acute diffuse processes. In a few instances a marked periappendicitis was present, fully as intense as that in the case described, but in no single instance was anything seen even remotely suggestive of decidua formation. In one case, scattered about the outer edge of the longitudinal muscular coat, were a few small groups of two or three large cells each, but these did not resemble in the least the structure of decidual tissue, and would probably have passed unnoticed, had not the attention of the examiner been directed especially to the discovery of any enlarged or swollen cells; they appeared to represent merely an inflammatory reaction of the endothelial cells of small lymph-vessels, such as is not infrequently seen under various conditions.

While this series is, of course, too small to permit of any wide generalization, it coincides as far as it goes with the experience of other investigators. Hirschberg examined the appendix from a second case of tubal pregnancy, and was unable to find decidua, and Taussig[8] examined a specimen from a ruptured tubal pregnancy of the right side, in which the appendix was embedded in hemorrhagic masses and was removed with the gestation sac. In this instance "a large number of sections were made from three portions of the appendix and mesentery, but no trace of decidua was found anywhere."

Of great interest in connection with cases of this character is the question of the etiology of the extra-uterine decidual masses—a question which can hardly be separated from that of the etiology of decidua in general. From a somewhat similar study of the subject, Taussig has come to the conclusion that certain end-products of placental metabolism incite in the loose connective-tissue cells of the uterine mucosa the typical decidual change, and that the end-products exert a similar influence on the subperitoneal connective-tissue cells of the various other parts in which this has been found. Since the extra-uterine decidual reaction occurs always near the surface of whatever tissue it involves, Taussig believes that some surface irritation must play an important rôle, but that since the decidua-like cells occur in scattered, more or less circumscribed patches, the causative influence, whatever its nature, cannot be transmitted by a soluble substance, or by way of the blood-vessels or lymph-channels. He has therefore advanced the theory that cellular detritus from the placenta passing out through the lumen of the tubes, and becoming scattered over the pelvic peritoneum, might bring about a spread of the irritation which would fulfil the requisite conditions.

While this theory appears at first sight fairly plausible, it does not appeal to me as a very satisfactory explanation for the majority of cases, and certainly not for the one at present under consideration, in which there were no adhesions to bring the appendix—the site of the decidual reaction—into especially close relationship with the uterus, tubes or any other portion of the genital system. Moreover, a rather cogent argument against the origin of uterine decidua being dependent on the end-products of placental metabolism would seem to be furnished by the fact that not only does the decidual change begin to take place in the endometrium before there is any suggestion of placenta formation, but that at each menstrual period the stroma cells of the endometrium undergo changes which are identical with the first steps of decidua formation, and result in the production of a histologic picture that can with great difficulty be distinguished from early decidua. Indeed, the difference between the true decidual tissue of pregnancy and the pseudodecidua of menstruation is one of degree, rather than of quality, the former undergoing a routine development far richer and more perfect than is ever attained by the latter.

As I have pointed out in a previous paper[9] on decidual reaction in the omentum, the theory advanced by Loeb[10] to account for the formation of intra-uterine decidua appears, perhaps, to offer a more satisfactory explanation for its occurrence likewise outside the uterus. Loeb's theory, based on careful animal experimentation, is, in brief, that the corpus luteum elaborates a sensitizing hormone, under the influence of which the stroma-cells of the endometrium react to any non-specific irritation—such as the introduction of a small foreign body into the uterus—by the formation of a decidua, the necessary irritation being furnished under normal conditions by the lodgment of the fertilized ovum. If the presence of such a hormone can thus sensitize the stroma-cells of the uterine mucosa, why may it not be assumed to exert a similar influence on the connective-tissue cells of other areas, so that when acted on by any sufficient irritant, they too will undergo a similar transformation—less well-developed, however, inasmuch as this tissue is not so well adapted to undergo the characteristic changes as is the loose endometrial stroma? The fact that in addition to the presence of the sensitizing hormone, this second factor of local irritation appears to be necessary to cause any considerable decidua formation, would seem to furnish a sufficient explanation for the occurrence of this in scattered patches rather than diffusely; only at those points at which some slight mechanical or other stimulus is active do the cells undergo a decidual change. The occurrence of the reaction usually just beneath the surface may be explained on the ground that the tissue in this location is rather loose, so that its cells have a better opportunity to expand than do those of the deeper structures, as well as by the fact that the local irritation is probably, in most instances, exerted from the surface.

In the case of the appendix described in this paper, the intense inflammation present undoubtedly furnished the irritative stimulus necessary to produce the reaction; that a similar reaction is not found in all inflamed appendixes removed during ectopic or normal pregnancy is probably to be explained in the same way as its failure to occur, in some instances, in the tubal mucosa, or in any other of the numerous extra-uterine situations in which, in other instances, it does develop. Ectopic decidua appears, on the whole, to be extremely fitful in occurrence, a circumstance which—if we accept the previously outlined theory—may be ascribed to variations in the intensity of action of the ovarian hormone, to different degrees of responsiveness on the part of the subperitoneal connective-tissue cells, or to the presence or absence of suitable local stimuli, each of these factors undoubtedly varying greatly in individual cases. Viewed from this point of view, the appendix must be considered an organ whose cells are extremely unresponsive to the decidual stimulus; while as a rule they do not undergo during pregnancy any change analogous to that shown routinely by the cells of the endometrium, and more or less spasmodically by those of many other locali-

8. Taussig: Ectopic Decidua Formation, Surg., Gynec. and Obst., 1906, ii, 292.

9. Outerbridge: Decidua Formation in the Omentum in Secondary Abdominal Pregnancy, Am. Jour. Obst., 1912, lxv, 212.

10. Loeb: Zentralbl. f. Physiol., 1908, xxii, 498; 1909, xxiii, 73; 1910, xxiv, 203; The Production of Deciduomata, THE JOURNAL A. M. A., June 6, 1908, p. 1897; The Experimental Production of the Maternal Placenta, THE JOURNAL A. M. A., Oct. 30, 1909, p. 1471; Med. Rec., 1910, lxxvii, 1083; Deutsch. med. Wchnschr., 1911, xxxvii, 17.

ties, they may, under exceptional circumstances, take part in a similar transformation, showing a well-marked decidual reaction in conjunction with either ectopic or uterine pregnancy.

NOTE.—Since the proof of the foregoing article was corrected, a second instance of distinct decidual reaction in the appendix in conjunction with normal pregnancy has recently come to my notice.

Mrs. L., aged 22, pregnant at about the sixth month, was operated on for an acute appendiceal attack by Dr. H. D. Beyea at the Gynecean Hospital, Oct. 7, 1913. The appendix was found greatly thickened and congested; it was closely bound down by a very short meso-appendix, but was not adherent to the uterus. There was no perforation, but there was a small amount of odorless, purulent exudate in the immediate appendiceal neighborhood. Following appendectomy and drainage the patient made an uneventful recovery, without disturbance of the pregnancy.

On microscopic examination of the appendix, all coats are seen to be thickened, and intensely infiltrated with round cells and polymorphonuclear leukocytes, presenting the characteristic appearance of an acute, diffuse appendicitis. Here again, however, the serous coat is the one most markedly involved; it is many times thicker than normal, edematous, and shows much congestion and inflammatory infiltration. Scattered here and there, chiefly in this instance in the deeper portions of the serosa, near the longitudinal muscle layer, are numerous small but very distinct and characteristic groups of the same large cells before described and illustrated. Although in this specimen none of the cell-groups are as extensive or prominent as in the first case, there rarely being more than half a dozen cells in a clump, and often only two or three, their appearance is so typical and distinct from anything else that there can be little doubt as to their significance. In many instances they are distinctly multinucleated, a condition not infrequently seen in true decidua.

It is rather significant that we have in this instance practically the same conditions as were present in the first case, namely, an appendix the seat of an acute inflammatory process, affecting most markedly the serous coat, in association with a well-advanced intra-uterine pregnancy.

2040 Chestnut Street.

INFANTILE PARALYSIS AFFECTING THE LOWER EXTREMITIES; ITS SURGICAL TREATMENT AND POSSIBILITIES OF CURE

A PRELIMINARY REPORT

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If we remember that, rickets excepted, infantile paralysis is the most prolific source of deformity, that 85 per cent. of these deformities affect the lower extremity and that in many instances the usual treatment is tiresome and tedious and extends over many years, then any short cut to the restoration of function in such cases is worthy of consideration. It will serve for contrast and comparison if for no other purpose.

My case is as follows:

History.—L. J., boy, aged 3, of Prince George's County, Maryland. Family history negative; father and mother, two sisters and a brother, alive and enjoying good health. None of these has experienced any illness similar to that of the patient, though there were other cases, I am told, occurring at the same time in that neighborhood. There are no evidences whatever of syphilis in the parents. Previous history: The child was breast-fed, enjoyed excellent health and was quite strong and active until nearly 6 months of age, when he was taken suddenly ill, with restlessness, fever and great irritability. He apparently desired to be let alone. Any movement, as an attempt to lift him, would cause him to cry out with pain. In a few days the mother noticed that he was quite unable to move his right leg, which lay limp and lifeless. After some weeks the child appeared normal again, except that the right lower extremity seemed completely paralyzed and remained so for two years. In May, 1913, the child was referred to me.

Physical Examination.—The child is fairly well nourished and normal in appearance except as regards the entire right lower extremity, which is in a state of apparently complete flaccid paralysis. The thigh hangs limp from the hip-joint, with slight flexion at the knee. There is marked difference in the measurements of the two thighs, legs and feet. The pointed toe of the right foot is typical. The reflexes are normal in the left lower extremity, while in the right, knee-jerk, Achilles tendon, Babinski and Kernig's signs are all absent. With the exception of the slight tonicity of the biceps, loss of power seems complete. If the child is made

Fig. 1.—Fixation at ankle-joint; also scaphoid and cuboid bones. Anteroposterior view.

to stand on the sound leg, there is marked external rotation of the right thigh and eversion and abduction of the leg and foot. The capsule of the hip-joint is quite relaxed, and the head of the femur swings freely, partially without the acetabulum. The arc of rotation described by the trochanter is much exaggerated as compared with that of the sound side. The flaccid condition having existed for a little over two years, the only encouragement offered lies in the use of the biceps for transplantation, together with fixation of the ankle-joint.

Surgical Treatment and Results.—The technic pursued consisted of the transplantation of the biceps tendon into the patella and a double fixation at the ankle-joint by means of three screws. With the foot in the corrected position at right angles to the leg, one screw was passed through the external malleolus, astragalus and calcaneus, another through the internal malleolus almost at right angles to the first, while a third screw was passed through the scaphoid and cuboid, fixing the key of the arch of the foot. The head of the femur was returned to the acetabulum and a plaster-of-Paris cast snugly applied from the foot to the costal margins and allowed to remain on for six weeks. The wounds healed by first intention.

Passive motion and massage were then instituted, and the weight of the body gradually applied to the foot, now firmly fixed at the ankle-joint. Minute instructions were given to the mother as to the training of the child to walk, and as an aid to this end a simple device of the foot-bridge effect, with hand-rails, was built outdoors close beside the house for daily exercise. The child held to the rails while his feet were, in the beginning, picked up and carried forward in the earliest attempts to walk. Two perfectly straight strings were laid on the ground between the rails, on which the child's feet were placed, so that he might be taught, so far as possible, to walk straight from the beginning; this was intended primarily to overcome the external rotation of the thigh, eversion and abducted foot-effect.

The power of the biceps soon manifested itself, changing its action from flexion to a very slight extension of the leg. The foot held firmly in the right-angled position. Improvement at first was very slow, and at times discouraging, but progress has continued steadily and without retrogression to date. The gain in strength to the leg, the increase in size of practically all the muscles, the marked growth of the child and the improvement of his mental and physical condition have been most gratifying. He can walk short distances,

Fig. 2.—Fixation at ankle-joint; also scaphoid and cuboid bones. Lateral view.

50 or 60 feet, without any assistance whatever.[1] He can stand the weight of his body on the affected leg without its buckling beneath him. He enjoys his exercise in the open air and sunshine on his little foot-path with rails, and is quite delighted with the idea, which he has been taught to believe, that he is soon to be able to walk and play like other little boys. The external rotation of the thigh, with its eversion and abduction effect on the leg and foot, still persists, but I have as yet made no attempt to correct this, further than by the use of a little adhesive plaster running from the thigh above the knee on one side across to that of the other, which serves very well indeed for a temporary correction of the deformity. It gives him the wider pedestal on which to walk and stand. This is deliberate. In the earlier stages of the treatment, I believe that "suits of armor, bristling with screws and ratchets," if it is possible to do without them, are a decided disadvantage. They are an absolute hindrance to the freedom of growth and development and the early acquisition of strength to the affected limb, and of all considerations these are paramount.

1. The paper on which this report is based was read before the Medical Society of the District of Columbia, April 23, 1913. Since then, the improvement has been marked; the child can now walk 50 yards without assistance.

POSSIBILITIES OF CURE

The operation to be successful must of course be followed by long and careful after-treatment, anticipating the sequence of events. The great error has been to assume that certain groups of muscles irresponsive to stimulation are lifeless, and that there is cell destruction in the motor area. On he contrary, actual cell destruction is nothing like so common as one might suppose, the condition often being transient and recoverable. Until this fact is accepted, the potentialities for recovery are not realized.

CONCLUSIONS

I am of the opinion that many cases of infantile paralysis regarded as hopeless are amenable to the treatment herewith suggested. The double-fixation method with tendon transplantation in paralysis of the lower extremity is, I believe, a valuable surgical asset. It is an effective substitute for arthrodesis, much less destructive of tissue, quicker in result, much surer and much simpler. Further, it does not permanently destroy the integrity of the joint or entail the extensive destruction of bone or cartilage, or both, and does not have to wait for the dictum of the "tenth year" in order to be effective. Again, these screws can be removed when strength to stand and muscular function are firmly established, thus restoring at least in part the integrity of the ankle-joint. At this late date of removal, recurrence is quite improbable. We may style the scaphoid and cuboid bones the key to the arch of the foot, and their fixation at this critical period with that of the ankle-joint itself unquestionably adds material strength to both. It is very effective in the prevention of toe-drop. That the screws may act as foreign bodies is an exaggerated fear. Foreign bodies become active only in the presence of infection. This has been conclusively shown by Lexer and Lane.

A double fixation is a double strengthening. It makes assurance doubly sure. The foot-bridge with handle-bars and strings on the ground running parallel is, I am persuaded, an effective device, the simplicity of which is its recommendation. The value of the open air and sunshine, in connection with the exercises as carried out with this device, is patent. The little patient early learns to become independent of another's assistance, and this independence stimulates and encourages self-confidence.

Properly directed, nothing else is quite comparable to exercising of the muscles by the patient himself. Self-reliance has no substitute.

The roentgenograms illustrating this article were taken by Dr. T. A. Groover.

The Farragut.

CAUSES OF ERROR IN THE DIAGNOSIS OF DISEASES OF THE JOINTS *

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Surprise is often expressed by those who specialize in medicine at the number of erroneous diagnoses in the patients who are referred to them for treatment. The expert certainly should be able to make more correct diagnoses in the line of work that he is an expert in than one who is not specializing; but even among so-called experts errors are frequent and the correct diagnosis is sometimes never made, and in other instances many men are seen before the true nature of the disease is arrived at. Much could be written on the necessity for a correct diagnosis as preliminary to correct treatment, and in many instances errors in diagnosis involve serious results for the patient, as faulty treatment may actually render conditions worse; but this phase of the subject does not need to be elaborated. In this connection, however, I quote the following from Richard C. Cabot:[1]

I wish in this paper to make three points: 1. A goodly number of "classic," time-honored mistakes in diagnosis are familiar to all experienced physicians because we make them again and again. Some of these we can avoid; others are almost inevitable, but all should be borne in mind and marked on medical maps by a danger-signal of some kind: "In this vicinity look out for hidden rocks," or "Dangerous: turn here, run slow." I shall enumerate some of these danger points presently.

2. Some common diseases are relatively inaccessible to diagnosis, no matter how carefully we are on the watch for them. From the study of 3,000 autopsies, I have begun to work out a percentage or ratio of accessibility for the commoner diseases.

3. Besides the classic and well-known pitfalls there are some less familiar to the profession and needing all the more, therefore, to be marked "dangerous."

Most physicians believe that Pott's disease of the spine is easily recognized because of the "knuckle" in the spine, the pressure signs, muscular rigidity and secondary abscesses, but the difficulty is precisely in that group of cases which do not show these signs.

Some of the most humiliating yet almost unavoidable failures of my experience have been made in cases which showed post mortem the lesions of Pott's disease. Only four of the seventeen cases that came to autopsy in this series of 3,000 post mortems were recognized in life. In ten of the thirteen "misses" there is "no blame to be attached to the official in charge." The diagnosis was not suggested by any of the facts at our disposal. The clinical picture was usually that of an overwhelming infection (miliary) which was called "septicemia from pelvic abscess" (really a psoas abscess), "meningitis," "acute uremia" (two), "septic scrotum," "otitis media with pyemia," "pneumonia" (two) and "septic hand with general sepsis."

In two cases there was a slight kyphos which should have been noticed, but as it had been there for many years without change, it was ignored. In one case there was a gradual, even curve of the whole spine diagnosed by a skilful orthopedic consultant as spondylitis deformans.

The ages of the thirteen patients whose disease was unrecognized were: 26, 51, 54, 81, 29, 44, 49, 53, 50, 64, 65, 45, 40. The average is fifty years. In the four recognized cases the ages were 34, 40, 34, 21 (average, 32).

The moral is that we do not look or ask carefully enough for evidence of old vertebral tuberculosis in elderly patients, because we associate the disease with youth.

To those who specialize in orthopedic surgery it seems rather strange that so many errors should be made in the diagnosis of adult Pott's disease, but it only shows how necessary is a complete, careful examination of the entire body in cases in which the symptoms are not absolutely clear, because a complete examination of this kind would often reveal the true conditions present.

The percentage of correct diagnoses in Cabot's series varied greatly. The smallest was 16 per cent. in acute nephritis as compared with 92 per cent. in diabetes mellitus. Just what the percentage of error is in the diagnoses of diseases of the joints, it is difficult to state, but it has seemed desirable to bring together a few facts which might help those who have to make such diagnoses, to guard against errors that are avoidable. It is for that purpose that this article has been written, and in it no attempt will be made to print a list of all the diagnoses that could be made for any given condition or all the posible errors that are encountered in the diagnosis of any given condition.

The chief causes of error are:

1. Failure to obtain a proper history.
2. Failure to make a proper examination.
3. Failure to take a roentgenogram.
4. Failure to interpret the Roentgen findings properly.
5. Failure to use laboratory methods as aids to diagnosis.
6. Failure to adjust laboratory findings and clinical symptoms properly.
7. Failure by many physicians to realize their limitations—erroneous diagnoses due to ignorance.

The failure to secure a proper history is responsible for many errors of diagnosis, and the traumatic theory of the causation of joint-diseases was largely due to the failure to secure good histories, to ascertain the true facts or all the facts in the history of the patient with joint-disease. Many of these conditions occur in early childhood and in many instances the parents will attribute the symptoms to a fall, insisting that the child was perfectly well until then. A careful cross-examination, however, will show that night cries, intermittent pain and lameness may have existed for months but were not considered of any importance until the symptoms became aggravated as the result of some more or less serious traumatism.

A large number of the cases of Pott's disease in my experience have been attributed to the negligence of a nurse in allowing the child to fall, and the smallest of knuckles of the spine occurring in children of 4 or 5 may be ascribed to some traumatism of early life, or even pass unnoticed for a long time, or a careful history will show that the present symptoms had no connection with the traumatism which is held responsible for them. Systematic and careful histories should be taken in all cases of joint-disease and the teachers in the medical schools can do no greater service to their students than to impress on them the necessity for careful history taking.

It is essential if one is to draw any definite conclusions as to the causation of any given diseased condition, and a careful and well-taken history will clear up many obscure and involved conditions. Joint-diseases occur with, or are caused by, many infectious processes, and a good history will tell one whether the patient has or has had typhoid fever, scarlet fever, pneumonia, gonorrhea, syphilis, a new lesion, or an inherited one, a sore throat, and whether or not antitoxin was used, a tabes dorsalis, or any of the various forms of nervous disease accompanied by or followed by joint lesions.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Cabot, Richard C.: Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies, THE JOURNAL A. M. A., Dec. 28, 1912, p. 2295.

I have seen errors made in joint lesions of all of the before-named conditions in which a good history would have made conditions clear. For hospital or even private work history sheets or cards are invaluable and hasten history taking and assist in securing all of the desired facts relating to any given disease.

The history will also be of great help. If taken in connection with printed cards in causing the observer to think logically and not to lay too much importance on the trivial facts which are to the patient often the most significant, and thus made the most prominent in his details of the symptoms for which he applies for diagnosis or treatment.

At present the subject of heredity is not considered of so much importance as formerly, but it is of some value and that subject and the method of life and the surroundings in which the patient lives or has lived can be ascertained only by a careful history. Hereditary syphilis is very important, and knowledge can be secured in many instances only by careful and diplomatic cross-questioning. The history of mother and father should be taken separately, without knowledge of the other. Not only may the information be of value in arriving at a diagnosis, but it may also be of use in treating the parents and avoiding further inherited conditions.

As one sees patients in consultation one is also impressed with the fact that the physician who has a careful history, preferably a written one, to present is far less frequently liable to make an error in diagnosis than the one who has no clear idea of the history of the patient's previous condition. The failure to secure a good history is usually due to laziness or too great haste in the examination, although some physicians, like some lawyers, seem to lack the power to cross-examine properly. As most of those who contribute to medical literature draw most of their material from hospital wards rather than from private practice, they probably appreciate more fully the value of a good history than do those whose practice is exclusively among private patients; but the latter class of physicians could contribute fully as valuable material to medical literature if by a slight additional effort they would take histories of the most important of their cases, if not of all.

Most physicians can recall errors made in diagnosis from a failure to secure a good history of the case, and I feel that with the great tendency toward submitting everything that can be submitted to a laboratory test, the value of taking a proper history of every patient should be insisted on more strongly to-day than ever.

The failure to make a proper examination is also a frequent cause of errors of diagnosis. In childhood there is no excuse for lack of a thorough examination because children, even those in the second decade of life, are usually not close observers, and it is essential that they be examined with the clothing removed, and no objection is made to this procedure in either sex. In adults it is different. It takes time to dress and undress, and the physician is often hurried and yields to the wishes of the patient that only a partial examination be made. Many women also object to undressing for an examination, and sometimes much tact is required to secure their consent. The large number of errors in the diagnosis of Pott's disease referred to by Cabot were largely due to failure to make a proper examination, and his statement that "The moral is that we do not look or ask carefully enough for evidence of old vertebral tuberculosis in elderly patients" is interesting; but not all of these cases in adults are by any means old vertebral tuberculosis. Many are recent infections. To examine the spine of every patient applying for treatment would be absurd; but if it could be done in many instances it might be of value to both patients and doctor.

That Pott's disease in the adult is frequently overlooked, apart from Cabot's statistics, is a well-known fact. Two patients that I have referred to in another paper, in which the stomachs were washed out for varying periods by capable physicians, illustrate the failure to recognize a Pott's disease. The diagnosis of the same disease and of a lateral curvature by the dressmaker is not infrequent, because of failure of the physician to make a proper examination. The diagnosis of osteitis of the hip, knee or other joint and the overlooking of an active Pott's disease is not infrequent. The same is true of any active or acute disease. All attention is centered on it and other lesions overlooked, because they are not looked for. Enlarged and suppurating tonsils, carious teeth, pyorrhea, osteomyelitis of alveolar processes and jaws, swollen or bleeding gums, are all important in seeking obscure causes of infection.

I must acknowledge that to careless or hurried examination I have to credit most of my errors in diagnosis, and from conversation with colleagues I believe that it is the most frequent of all causes and that it is avoidable. To call attention again to this fact is therefore proper. Among the many new methods of diagnosis or aids in diagnosis is roentgenoscopy. It is of great aid in some instances and a great disappointment in others. A good roentgenogram may show something, while a poor one will show nothing. In early, incipient cases in which its aid is most helpful, even the best of roentgenograms often show nothing; but in case of doubt one should always be taken, if possible. It may show something and it will help in case of future trouble. It will show that everything possible was done to make an accurate diagnosis. In malpractice cases many arguments have been advanced by the attorneys to show that as there was a doubt as to diagnosis a roentgenogram should have been taken to clear up the doubt, and the failure to take one was "negligence." This is an extreme view; but as roentgenoscopy is so commonly employed, this aid to diagnosis should be more freely used.

Too much reliance must not be placed on the interpretation in roentgenoscopy. Experts differ wonderfully and no reliance should be placed on a poor roentgenogram in which one tries to see what he desires to see and no one else can see. Such a series of plates was sent me a few days ago with a diagnosis of osteo-arthritis of the spine. That was the diagnosis made by the physician in charge. As the consultant, I had asked for some roentgenograms, and they were made. The roentgenologist confirmed the diagnosis. The plates were shown by me to a number of men, and the only possible diagnosis that could be made from them was that they were attempts to take roentgenograms of the spinal column. Not even magnifying glasses and electric lights in boxes revealed any details to suggest the diagnosis made by the roentgenologist. This is not infrequent and may cause serious errors in diagnosis.

Another error is to misinterpret the findings in either a good or poor roentgenogram. Foci of disease are found where none exist and are overlooked when they are present. I have seen both conditions in which more careful examinations confirmed the facts. In one instance a focus of disease was shown on a print and no one could find it on the original plate; yet it really existed. The prints are usually not so satisfactory as the original plates.

Most plates make poor prints, and it is often impossible to see anything on a print. A blurring of a joint-surface may be taken for a beginning disease when it really is due to the fact that the patient moved during the taking of the picture. Occasionally a view in one plane will reveal facts that a view in another plane does not show. In developing the plate valuable data may be hidden or clearly brought out, and errors of photographic development may be responsible for false ideas as to what the roentgenogram really shows.

Negative findings should not be considered except very rarely. No one should ever make the mistake of ignoring clinical symptoms. Every question of doubt must be decided in favor of the existence of disease when the Roentgen findings are negative.

Errors due to placing reliance on roentgenoscopy are numerous and are encouraged by the statements of many Roentgen operators, that if disease is present the roentgenogram will surely show it. This is not founded on careful observation or thorough knowledge. Many early conditions cannot be detected by the Roentgen ray. In very fat persons clear pictures are the exception, and in early childhood soft bones and epiphyses do not lend themselves readily to clear and distinct differences between the normal and abnormal. Therefore, the caution is needed, do not rely too much on the roentgenogram; ignore it entirely if it is a poor one, or if no skilled expert has the opportunity to interpret it. What the average physician does not know about roentgenograms would fill many a volume, and even some experts have much to learn.

The laboratory aids to diagnosis are so important that they are being used more and more. In some instances they, too, fail to give us information in the early cases of joint-disease, so that one must, as in Roentgen-ray findings, be careful not to place too much reliance on a negative finding. The positive findings are of the greatest possible value. A positive Wassermann or a complement-fixation reaction in syphilis, a demonstration of gonococci, or the complement-fixation reaction, a positive tuberculin test or the presence of bacilli of Koch in sputum or in any of the discharges, and the presence of pneumococci and other bacteria make diagnoses possible of a definite kind that clinical symptoms can only suggest. The latter indicate disease of a joint, the former the nature of the infection. A leukocytosis may also be of value in differentiating different diseased condition. The laboratory findings must be interpreted intelligently. Not too much reliance must be placed on a tuberculin or Wassermann test in which the clinical symptoms "do not fit," so to speak. Such a case is the following:

A positive tuberculin test was obtained in an adult with a low leukocyte count, a swollen ankle, a tender spot and swelling of lower third of tibia, a septic temperature ascribed to tuberculosis by the bacteriologist diagnostician, and loss of weight ascribed to tuberculosis by the family physician. There was a cough, but examination of sputum was negative. Roentgenoscopy at first was negative, and a diagnosis of osteomyelitis was made. Two weeks later Roentgen findings were positive, revealing a focus at the site of tenderness in the tibia. Operation was consented to. On the day before the operation there was a high leukocyte count; pus was found and evacuated; the temperature became normal; the cough disappeared; weight was more than regained, and the diagnosis of tuberculosis proved incorrect.

The general rule is that a high leukocyte count does not occur in bone tuberculosis but only in cases of infection by pyogenic organisms. The high count just before the operation confirmed the diagnosis. Other experiences of this kind occur to all and render caution necessary. The existence of two diseased conditions present in one person at the same time must be considered.

The prevalence of certain forms of arthritis varies greatly according to surroundings and conditions. Take for instance the table of Baetz,[2] who found in 100 cases of acute arthritis among negro laborers on the Canal Zone 63 cases of syphilitic arthritis, 28 of gonorrheal arthritis, 6 of undetermined arthritis, 2 of dysenteric arthritis and 1 of tuberculous arthritis. This is rather startling but easily accounted for by the conditions: a large male population made up of single men of low morals, with venereal diseases prevalent. No private practice in the United States would show the same proportion of causes of infection. All tests of laboratory type must be carefully interpreted, and the views of Craig[3] of the Army Medical Corps, express clearly the various interpretations that are to be given to the test, and close with these very pertinent remarks, which should be always followed by all who have to treat disease:

For this reason the test should be made only in properly equipped laboratories by those who have received special instruction and who devote a large part of their time to this work. Under such conditions results will be satisfactory, but the interpretation of the test must always remain with the clinician. The laboratory report deals only with the result of the test, and it rests with the clinician to correlate this result with the clinical condition present.

Errors due to failure of physicians to recognize their limitations may in some instances be prevented by the sad experiences that sometimes follow serious errors. Many physicians are most conscientious in this respect, either declining to treat a given case or at once calling in an expert. A few others, some posing as specialists in some line in which joint cases are seldom seen, take such patients and continue to make the diagnosis of rheumatism for every joint lesion seen. For accurate diagnosis it would be well if the term "rheumatism" could be omitted entirely from nomenclature. Kenneth Goadby[4] says:

The term "rheumatism," like many another medical word, has come to designate a multitude of diseases, and covers many sins of commission and omission in diagnosis. Omnibus words of this type are, no doubt, very useful, but tend to hamper exact description.

This class and the ignorant physicians who do not know a diseased joint when they see one are hopeless. No article ever written will reach them. Fortunately they are few in number and their number is becoming less each year.

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ABSTRACT OF DISCUSSION

DR. D. J. GRIFFITH, Kansas City, Mo.: There are some other joints in which we are sometimes liable to make errors in diagnosis without the use of all the adjuncts of which Dr. Townsend has spoken. At any rate, the Roentgen ray is sometimes not available for use, and the patient comes with a diagnosis of other troubles besides the spinal one. This experience occurred to me in the case of a child, aged 10 years, who was brought to me with a history of knee-joint trouble. It seems that, four or five years before, she had jumped and landed on one foot, instead of on both feet. Suddenly she

2. Baetz, Walter: One Hundred Cases of Acute Arthritis Among Negro Laborers on the Panama Canal, THE JOURNAL A. M. A., April 5, 1913, p. 1065.
3. Craig, C. F.: Interpretation of the Results of the Wassermann Test, THE JOURNAL A. M. A., Feb. 22, 1913, p. 565.
4. Goadby, Kenneth: London Practitioner, January, 1912.

experienced pain in the knee and just below it. She was brought to me after having had treatment for knee-joint trouble, of which she had had occasional attacks. At the tubercle of the tibia, but nowhere else, there was pain on pressure; she had passed over the point of temporary synovitis produced when she strained the joint. We found, on making a roentgenogram, one of those unusual cases that Dr. Osgood presented several years ago before the American Orthopedic Association. The tubercle of the tibia was torn off by the quadriceps tendon through some overexertion. The epiphysis had not been joined onto the diaphysis and had torn loose—Osgood-Schlatter disease,

DR. HENRY LING TAYLOR, New York: There is one diagnosis that Dr. Townsend did not speak of that every orthopedic surgeon should be able to make, and that is the diagnosis of whether a roentgenogram is good or bad. The importance of this fact came out in practice when a medicolegal case was brought for diagnosis. The patient, a woman, was lame and had tenderness back of the hip, but the symptoms did not resemble any kind of arthritis of the hip. Her physician brought a series of roentgenograms to me and said: "Do you not see a cyst in these plates?" "No," I replied. "What do you see?" he asked. I said, "I see a poor roentgenogram." It was very cloudy. I insisted on having a series of good roentgenograms before I made a positive diagnosis. They showed no cyst but a button of bone divulsed, pulled out, just behind the obturator fossa. It was a unique case. I never saw or heard of one like it. This button of bone showed plainly in a series of five or six roentgenograms, taken in five or six different positions; this cleared up the diagnosis absolutely.

DR. E. W. CALDWELL, New York: I am glad to have an opportunity to express my approval of all that Dr. Townsend said about the danger of misinterpreting roentgenograms, and especially about the usual inaccuracy of hospital roentgenograms. For many reasons, which I shall not discuss at present, it is difficult to get good roentgenographic work in any hospital or similar institution. Sometimes it is a question of money. Often, however, it is a question of recognizing that Roentgen diagnosis is not photography. Many hospitals want to have this work done by a photographer. Although some photographers can be taught to make good-looking plates, we have all had plenty of occasion to know that the photographer's plate is not safe.

DR. REGINALD H. SAYRE, New York: I often find that I do not get the true history of these cases until many months after I have been treating the patient, not on account of intentional falsification on the part of the patient, or on account of carelessness on my own part; but now and then, something will be said that will bring to light a fact that has been lost sight of absolutely.

There are one or two pitfalls in diagnosis that I have happened to notice, which I do not think Dr. Townsend mentioned. One is the possible error in mistaking anterior poliomyelitis, in the first few days of its course, for joint affections. I have seen three cases of this disease that were brought to me on account of a painful limp, and had almost all the earmarks of a beginning tuberculosis of the hip or of a beginning hip-joint inflammation. Being uncertain as to the diagnosis, I asked the child, in each instance, to come back again at the end of a week for further investigation; and at the second appearance the child showed distinct evidences of the existence of anterior poliomyelitis and subsequently went through the course of that disease. This is a fact worth bearing in mind.

I have also seen several hysterical knees (so-called), which depended on a reflex uterine lesion and disappeared after the uterus had been put in place and retained there. I have likewise seen a case of supposed tuberculosis of the spine that had been treated by a number of men, which was also due to a retroflexion of the uterus. There was spinal distortion, weakness in the leg and atrophy of the muscles on the affected side, all of which disappeared after replacement of the uterus. I believe that cases of this kind are more frequently met than we are generally led to suppose; and I can certainly agree with Dr. Cabot concerning the frequency with which Pott's disease in the adult is overlooked, as I have seen a large number of patients with this disease who had been in various hospitals and had been treated for various things. I remember one patient who had been originally referred to the hospital by the attending physician for Pott's disease; but there, she was not operated on for Pott's disease, but for a lacerated cervix. The patient was then sent back to the attending physician, but her symptoms continuing, she returned to the hospital later for another examination. On this occasion the hospital physician turned the patient over on her face, and found a knuckle in the spine, which had probably been there all the time. Failure to look for such things is probably the reason for not observing them more frequently.

THE PASSING OF THE FAMILY DOCTOR *

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Lowell says, "Time makes ancient good uncouth." The whole trend of modern thought is to look for a new and better way. We travel, literally, in chariots with horses of fire. Jules Verne's dream of "Around the World in Eighty Days" has been more than realized and the stories of the Arabian Nights are equaled by the every-day events of common life.

Even our sentimental life has changed. The beautiful story of Uncle Toby and the fly that was an inspiration to our boyish imagination and the picture of the kindly old man opening the window and saying, "There's room enough in this world for both thee and me" has been changed to the slogan "swat the fly." We have come to agree with Cowper in reference to the lower animal's that

> If man's convenience, health or safety interferes
> His rights and claims are paramount and must extinguish theirs.

But in no realm of human activity has the advance of modern thought caused such changes as in the practice of our profession. In the past one physician, the family doctor, was deemed competent to meet all the exigencies of life requiring medical aid; he was physician, surgeon, obstetrician, oculist and pediatrist.

President Wilson,[1] in his admirable address of welcome as governor of the state of New Jersey, to the American Medical Association in Atlantic City on June 15, 1912, said:

> I believe you will agree with me that one of the things to be regretted in our modern time is that we have been obliged to specialize our professions to so great a degree, because in proportion as the medical profession is specialized, for example, the old family physician disappears. I remember going over in my memory a single year of my family life with my children when they were small and finding that I had called in consultation thirteen different specialists. There was no ill luck in the thirteen because it all came out very happily. But where I had summoned thirteen specialists, my father would have summoned one family physician. My father would not have got as good advice as I got, and yet I lived through it. But every time he sent for his doctor he was sending for a personal friend. He was sending for a man who had his confidence in a peculiar degree. He was sending for a man who walked the paths of life with him as a com-

* President's Address, read before the Lehigh Valley Medical Association, July 17, 1913.

1. Governor Wilson's Address of Welcome, THE JOURNAL A. M. A., June 15, 1912, p. 1913.

rade and confidant. There was something very vital, there was something very useful in that relationship, and although we have certainly yielded only to necessity, it is unfortunate that we should have been obliged to specialize so much as we have and therefore it is necessary, it seems to me, if you will permit me to suggest it, that we generalize our sympathies.

It is self-evident that the work of the profession must necessarily be specialized. The field has become so vast that one mind can cover it only in a general way. But granting that it may require thirteen or twice thirteen specialists to represent all that is known in medical science and medical practice, it seems to me that it will be an unfortunate day for society when the honored office of family physician has become obsolete. I know that it is now a common practice for people to act on their own volition in the choice of a specialist. This is unfortunate. It were better by far that the patient act under the advice of his physician, even in the choice of a hirsute specialist or a corn-doctor, for I have known more than one case of serious infection to arise from a dirty corn manipulator, and many a bald head comes from ill-advised use of hair-restorers.

In this respect, as in many others, people are not able to decide wisely for themselves. An advertisement in a newspaper or the advice of some layman may be followed. The optometrist claims that he can treat all ailments pertaining to the eye; the osteopath has the effrontery to undertake to cure anything and everything, and so on through the whole range of human ills: there are pretenders whose true status can only be known by the intelligent, conscientious family physician, consequently he should be consulted in the choice of a specialist; first, because by his intelligent advice the patient will choose a specialist worthy of his confidence, and secondly, because the cooperation of the family doctor and the specialist will result in the patient's benefit, no matter what the ailment may be. The family physician, by his knowledge of the patient's family history, environment and habits, can aid the specialist who should return the patient to the personal adviser for the after-treatment and care.

There is no doubt that never in its history was our profession so competent and so willing to give aid and relief to the human family as at the present time. Indeed, the whole tendency of society is toward a broader humanity, which means that the best that the profession can give, the best that charity can furnish, should be shared by everybody.

The work of the visiting nurse and the hourly nurse, and that of the social service worker has carried the charity of the hospital and of the profession in a most intelligent manner to the needy and deserving. Indeed the humane offices of the well-equipped charity hospitals and the services referred to give the best to the poor and dependent. The wealthy can command this, either in their homes or in private hospitals; but how about the middle-class man, the man who cannot, who will not make himself an object of charity, but who has not the means to command the best the profession can give in all the special lines he may need?

Let me cite a possible example: A self-respecting artisan, accountant or teacher, earning $75 to $100 a month, takes his wife to a physician for advice and treatment. It is found as the examination proceeds that the services of an oculist, a cystoscopist, a roentgenologist, a pathologist and probably other specialists are necessary for a complete diagnosis. How is it possible for this patient to obtain this service in the most complete manner as the profession now operates and have the charges remain within his ability to pay? The poor and the wealthy, as noted above, have the best the profession can give them; why not the eminently respectable and worthy middle class of our people?

Dr. Richard Cabot, in an address before the Medical Alumni of the University of Pennsylvania, April 18, 1913, in referring to the need of this class of better medical service, advocated the grouping of medical men representing the several specialties, thus securing for the patient what he called a "group diagnosis," which should be furnished at a figure within his ability to pay. He referred to clinics in which this feature was present. The most notable example is the Mayo clinic at Rochester, Minn. A patient at that clinic can have, in addition to an ordinary diagnosis, physical exploration, etc.: (1) examination of nose, throat, antra and sinuses; (2) examination of eyes and eye-ground; (3) blood-counts, hemoglobin estimates, also coagulation examination for malarial organisms; (4) sputum examinations, also feces, Wassermann, complement-deviation test, vaccines and other parasitic and bacteriologic examinations; (5) test-meals; (6) fluoroscope-bismuth plates of gastro-intestinal tracts and roentgenograms generally of chest; (7) kidney, skull, pelvic and long bones; (8) proctoscope work; (9) genito-urinary diagnosis, including also cystoscope, functional renal tests, etc.; (10) fresh or preserved tissues for pathologic diagnosis.

About fourteen thousand patients attended this clinic in the year 1912, all of whom were examined and a careful diagnosis made in each case. About half the number were found to present conditions requiring operation—in exact figures, according to the report for that year, 7,053. Dr. Graham informs me that this number, about 50 per cent. of the patients appearing at the clinic, is much larger than in the earlier days of their work, in which the number recommended for operative treatment was not over 25 per cent. This is due in part to the increased diagnostic ability of physicians and to the greater diagnostic aids that have so recently multiplied. All these patients, however, are carefully examined and charged a fee for services, according to their ability to pay, which may be as low as from $10 to $15, or may be as high as $500, if the patient is wealthy.

This combination of medical men, representing the various specialties, is, to a greater or less degree, possible in every community. Call it what you will, the department-store idea applied to medicine, or any other name, if the end accomplished helps financially to bring the best aid of the profession to the middle class, it is justifiable; aye, more it is a necessity.

This grouping of medical men representing special lines of study and work is the only way in which the middle class can command the best services, unless they pauperize themselves and enter charity hospitals. Patients referred to these groups can return for treatment to their family doctors or personal advisers, with a scientific diagnosis, or they may enter hospitals which should be so managed that the expenses may be within their financial possibilities. Hospitals managed by religious orders, in which the nursing and care of the patients are largely in the hands of women who consecrate their lives to this service, are entitled to consideration and respect. We have splendid examples of such hospitals in the German Hospital of Philadelphia and St. Mary's Hospital at Rochester, Minn.

Granted that such a plan is feasible, that the best specialists associate themselves in groups for diagnosing and treating patients; does this do away with the family physician? Not in the least. The family doc-

tor in this proposed scheme must be an up-to-date man. His knowledge must be general and accurate, he must keep in touch with advanced professional ideas, he must know that an operation for appendicitis performed within the first twenty-four hours of attack will, in all probability, cure the patient in one week, and that if a delay of forty-eight hours occurs, the results are much more serious and the convalescence prolonged into weeks or months. He should know that 80 per cent. of the growths in the mammary glands of women become malignant and that such patients should be referred to a surgeon. He must know that an inflammatory condition of the eye may be conjunctivitis, iritis or glaucoma; he must know the dangerous character of the latter two diseases, and especially that an acute inflammation in the eyes of the new-born is most dangerous and that all these cases demand the care of a specialist. He should know his own limitations. Weelum MacLure, the doctor of Drumtochty, knew that he could not give Tammas Mitchell's wife the treatment that was necessary; he knew that she required the services of a surgeon and Sir George, the queen's surgeon, was called and saved the woman's life by operation. Dr. MacLure was equal to the terrible emergency that came to Burnbrae's family, when the boy's hand was mangled in the threshing machine. He amputated the hand and saved the boy, "the very look of him was victory that day." He knew how to treat Saunders, when the fever ranged above the danger-point, for he and Drumsheugh carried cold water from the spring, "dooked" the patient and thus reduced the temperature, but when Mitchell's wife suffered from what was probably a pelvic abscess, he summoned a surgeon who saved the patient to her husband and children.

Much has been said lately of lodge practice and medical insurance. The lamented Dr. Bristow[2] stated that 50 per cent. of the population of the United States earns less than $500 each annually, that 20 per cent. earns as low as $200 each annually. It is self-evident that this meager income can at best buy only the barest necessaries of life, and that when sickness comes there is nothing to do but to become objects of charity in hospitals, or, by combination in fraternal organizations or beneficial societies with insurance features, to secure the services of a physician in their homes at a low rate.

The Judicial Council of the American Medical Association, of which I have the honor of being a member, has been struggling with the question of lodge practice and the chairman, Dr. Alexander Lambert, in the report to the last meeting of the American Medical Association held at Minneapolis in June, said:

> No one questions the right of any man to take out a health policy in an ordinary health insurance company. No one questions the right of that man by this policy to pay from $60 to $300 a year as an insurance against the possibility of accident or disease and possible temporary or permanent invalidism occurring to him in the work peculiar to the medical profession. How then does this differ from the dollar a year that members of the lodges and societies pay for the privilege of obtaining medical services and care in accident and sickness, if these misfortunes come to them? There is no difference in principle; there is no difference in the economic necessity of it. As such it should be recognized and treated. The question comes down then to the designation of the weekly or monthly income at which this should be treated as an economic necessity and above which it is an economic luxury. These economic conditions have been reached in the countries of Europe and have recently caused a vigorous struggle between the medical profession and the government in England. It is useless to struggle with "whereas's" and "resolutions" against these economic facts. It is time for the American Medical Association and its constituent bodies to look these facts squarely in the face, to accept them and, by instituting fair control, to see that justice is given to the members of their profession and that an equal social justice is given to the poor whose necessity demands this sort of service.

2. Bristow: New York Med. Jour., June 4, 1913.

After everything possible has been said of the division of medical practice into specialties, of the necessity of the poorly paid combining to secure cooperative insurance and medical treatment in their homes at a low rate, the field of the family doctor is still a large one and the demand for his services will ever remain, and a sorry day it will be when his influence has been lost and his interest forfeited.

And now, in conclusion, let me repeat that the day of the family doctor has not gone by. The individual, the family, need his wise counsel, his personal, friendly interest as much now as ever before. Our medical schools are wise in training men in general medicine in all its departments, that they may have intelligent perceptions of every phase of human suffering, and may be able to advise and direct their patients to the best sources of relief. The interest of the specialist must necessarily be general and lack the sympathetic, personal element mentioned by President Wilson as belonging to the family physician.

Just as the religious adviser is needed in spiritual matters or the lawyer in the affairs of business, so will the medical adviser, the family doctor hold his place in the American family. Our great country is a nation of families and so long as the family life remains the predominant feature of our social organization, just so long will the family doctor be a necessity, and his services be demanded, and it will be for him

> To give what none can measure, none can weigh,
> Simply to go where Duty points the way—
> Faith, honor, duty—duty calmly done
> That shouts no self-praise o'er a victory won—
> One bugle note his battle call,
> One single watchword—Duty—that is all![3]

109 South Franklin Street.

3. Weir Mitchell.

The Coordination of the Specialties.—After all, if unity and coordination are to be continuously realized in the profession at large, some one must be found there particularly standing for them. There never has been, is not, and never will be other than one such agent. He is the family doctor. No matter what may be his crudities, weaknesses and inconsistencies, he is the only material we have out of which to make a sovereign. And it is he who must save the day if medicine is to remain a profession instead of becoming an association or confederation or congeries of trades, and if order and symmetry are to prevail therein. . . . If such be his high destiny let him get himself ready for it. The trouble with him has been that he has not apprehended his proper mission, or the real basis of his strength, worth and dignity. He has been trying to do detail work in all quarters, when it is his business chiefly to oversee. He has been panting along after the specialists and succeeding merely in playing second fiddle to them, when it is his prerogative to marshal and command them. He has well-nigh split his "one small head" in his endeavor to be an authority in everything, when from the nature of the case, he can be an authority on nothing but humanity.—W. B. Konkle, M.D., in *New York Medical Record.*

VERRUGA PERUVIANA, OROYA FEVER AND UTA

PRELIMINARY REPORT OF THE FIRST EXPEDITION TO SOUTH AMERICA FROM THE DEPARTMENT OF TROPICAL MEDICINE OF HARVARD UNIVERSITY

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The expedition was undertaken for the purpose of investigating certain obscure forms of tropical disease in South America, particularly verruga peruviana, as well as with the idea of collecting material to be used for the instruction of students in the various courses of tropical medicine to be inaugurated at Harvard University in November of the present year. After proceeding to Colon and Panama we continued down the west coast of South America to Buenaventura, Colombia, and thence to Guayaquil. In Buenaventura, Guayaquil and the vicinity, material relating to biting insects, animal parasites, caraate, frambesia, plague, malaria and particularly yellow fever was collected. The studies carried on in relation to these localities will be considered in the complete report of the expedition to be made at a later date.

From Guayaquil we proceeded to Peru, where at Lima, and in a number of the mountain towns in the interior, the major portion of the work of the expedition was carried on. In Peru the diseases particularly investigated were verruga peruviana, Oroya fever and uta. Peru, in a number of ways, may still be spoken of as a land of mystery. The unusual climatic conditions which prevail in certain parts of this country—situated as they are so near to the equator—have undoubtedly exerted an influence in producing in some respects a very unusual flora and fauna in these regions; therefore it is not so surprising, perhaps, that unusual diseases should be encountered in these localities.

VERRUGA PERUVIANA AND OROYA FEVER

From the remotest historical times the inhabitants of Peru are said to have suffered severely from this obscure disease. Over four centuries ago, during the reign of Inca Huayna Capac, thousands of lives were swept away, supposedly from this malady; and it is related that during the sixteenth century a quarter of the army of Francisco Pizarro perished from it. References may be found to the disease in Peruvian writings of the seventeenth and eighteenth centuries, and from 1843 to 1871 a number of additional papers relating to it were published, among which may be particularly mentioned those of Odriozola[1] in 1858, and of Dounon in 1871. In 1870 a severe outbreak of fever took place among the workmen building the Central Railway between Lima and Oroya, and it is estimated that at least seven thousand lives were lost in the verruga zones. At this time the complaint received the name of "Oroya fever," although it appears that it was not contracted in Oroya itself. In 1906, out of a force of two thousand men employed in tunnel work for the Central Railway, two hundred are known to have died of the disease. Previous to 1885 there ensued some discussion as to whether Oroya fever and verruga were related to one another, or whether the latter was a distinct disease. Aug. 27, 1885, Daniel Carrion, a medical student in Lima, and a native of Cerro de Pasco, Peru (a town situated in the mountains far above the localities in which the disease abounds), attempted to solve this problem by vaccinating both his arms with blood from a verruga tumor. It is related that twenty-three days later he began to suffer from Oroya fever, from which he died, October 5. From this experiment the conclusion was drawn by Peruvian physicians that verruga and Oroya fever were only different stages of the same disease, and this is the opinion which has been held by practically all of them up to the present time. In honor of Carrion's attempt to throw light on the nature of the disease, the febrile condition which has been regarded as the first stage of the malady is now generally known in Peru as "Carrion's fever." Although it has been stated that Carrion during his illness kept notes, and gave a minute description of his symptoms to his companions, unfortunately it appears that none of these were preserved and published. No accurate record of Carrion's case is available, and no necropsy was performed. It has been asserted since that he died of typhoid fever or of a more acute form of septicemia.

In 1901 and 1902 Barton[2] performed extensive bacteriologic investigations, and concluded that in the blood and organs at necropsy of persons dying from Carrion's fever a bacillus was present which, though similar to *Bacillus coli communis*, could be distinguished from it. The organism was said to cause either a fatal septicemia in animals, or a verruga-like eruption of the skin. Biffi and Carbajal[3] and Tamayo and Gastiaburú[4] investigated this bacillus, and reported that it was present constantly and in abundance in persons suffering from Carrion's fever, and was agglutinated by their serum, but was absent from persons suffering from verruga peruviana without fever, whose serum also showed no agglutination of this bacillus. They identified the organisms isolated as belonging in the paratyphoid group. They were unable to confirm Barton's results as to the production of a skin eruption by the bacillus, and concluded that it is not the specific agent in Carrion's disease, but is a secondary invader in verruga, and gives rise to the symptoms of a form of typhoid fever, which disease constitutes the *fiebre grave* of Carrion.[5] In 1903 Biffi[6] and Gastiaburú[7] noted in stained preparations of the blood the presence of granules in the red blood-cells which stained readily with the basic anilin dyes. The form and structure of these bodies was that of a coccobacillus or

* Dr. Gastiaburú took part in the investigations carried on in Lima.

1. Odriozola: La Maladie de Carrion, Paris, Carré et C. Naud, 1898.

2. Barton: Crón. méd., Lima, 1901, xviii, No. 301, p. 193; No. 302, p. 210; 1902, xix, No. 334, p. 348.

3. Biffi and Carbajal: Crón. méd., Lima, 1904, xxi, No. 379, p. 285; 1903, xx, No. 346, p. 149; Arch. f. Schiffs- u. Tropen-Hyg., 1908, xii, 1.

4. Tamayo and Gastiaburú: Gac. d. l. Hosp., 1905, ii, No. 46, p. 516. Crón. méd., Lima, 1905, xxii, No. 406, p. 335; No. 407, p. 349; 1906, xxiii, No. 429, p. 327; 1907, xxiv, No. 453, p. 321; Gac. d. l. Hosp., 1906, iii, No. 62, p. 107.

5. Biffi believed that it was not proved that verruga peruviana and the severe fever of Carrion were two stages of one and the same disease (Footnote 3).

6. Biffi: Crón. méd., Lima, 1903, xx, No. 346, p. 149.

7. Gastiaburú: Crón. méd., Lima, 1903, xx, No. 356, p. 314.

of irregular granules. In 1905, before the Sociedad Medica Unión Fernandina, Barton[8] described in the red blood-cells of two persons sick with severe malignant fever elements similar in morphology to bacilli. In 1909 he noted the presence of these elements in stained blood-specimens in fourteen additional cases and expressed the belief that they were protozoa and probably the specific agent of the infection. In 1909 Gastiaburú and Rebagliati[9] observed the bodies described by Barton and stated that they were probably protozoa and might be regarded as the pathogenic organism in Carrion's disease. Later, Mayer,[10] Gastiaburú and Rebagliati,[11] Monge[12] and several other observers have been inclined to believe that the bodies described by Barton were products of cell degeneration. Nocolle,[13] Letulle,[14] Escomel[15] and Galli Valerio[16] found acid-fast bacilli in the lesions of the skin from patients with verruga. Darling,[17] whose studies are based on a necropsy made in Panama the day following the death of a patient with verruga, complicated with tuberculosis, suggests that the acid-fast bacilli previously described were really tubercle bacilli occurring in cases complicated by tuberculosis. Still more recently Gastiaburú and Rebagliati[10] have found in the liver and skin lesions of a verruga patient in the eruptive phase certain bodies, at times endoglobular in leukocytes and other cells and at other times free, which from their staining reactions and morphologic appearance they regarded as probably organisms of the genus *Leishmania*. Rebagliati also found certain endoglobular bodies which he considered to be remnants of nuclear disorganization of the erythrocytes, which suggested that Barton's bodies might be chromatin filaments, segregated from the nuclei of the erythroblasts.

According to the generally accepted opinion among the physicians of Peru at the time of our arrival in Lima, the disease verruga peruviana in the severe type begins with an initial stage known as the *fiebre grave* of Carrion, which is characterized by a fever which lasts from fifteen to thirty days, profound anemia, prostration and a high mortality. If the patient does not die in this stage the fever begins to abate, and the eruptive, or verruga, stage commences. If the eruption is generalized and abundant, then it is stated that the patient is sure to recover. In the chronic or mild type of the disease, which is said to comprise the great proportion of the cases, there is moderate fever of intermittent or remittent type, and pains in the joints are common; more or less anemia is present. The eruption is said to be the culminating phase in both forms, and it appears under various types which, according to the special characteristics they reveal, are termed "miliary," "nodular" or "mulaire."

Our investigations concerning the etiology of verruga peruviana and of Oroya fever were carried on in the Municipal Laboratory of Hygiene, and in the hospitals of the city of Lima, and in the mountain towns of Santa Eulalia, San Bartolomé, Surco, Cocochacra and Matucana, and in the vicinity of these towns. In the present report it is merely the intention briefly to enumerate some of the results of these studies. From our investigations we have concluded that verruga peruviana and Oroya fever represent two distinct diseases. The former is due to a virus which may be transmitted to animals by direct inoculation and which produces definite lesions in them, whereas the latter is due to an organism parasitic in the red blood-corpuscles sufficiently distinct from the other hematozoa to be placed in a new genus. So far this organism has not been successfully transmitted to the lower animals. The parasite which we consider to be the cause of Oroya fever produces in man fever and in severe infections a rapid and very pernicious form of anemia, which results in extreme prostration and frequently in death. In one of the cases studied by us, which resulted fatally, the red blood-cells numbered less than one milliom per cubic millimeter. At the necropsy in this case, in addition to the evidences of a very severe anemia, the spleen was enlarged and showed hemorrhagic infarctions. No other organism to which death could be ascribed was found present. In this uncomplicated case there was no eruption of verrugas. Both intravenous and intratesticular inoculation of rabbits, as well as intravenous inoculation of a monkey, with large amounts of defibrinated blood from severe Oroya fever cases did not produce any noticeable results; and the parasites observed in the blood in the cases in man were not found in the blood of the inoculated animals. The parasites were observed in the blood in the cases in man both in fresh and in stained preparations. According to Barton,[18] the bodies observed by him could not be detected in the fresh blood, and it has been stated that their refractive index must coincide with that of the erythrocyte. The organisms, we observed, consisted of rod-like bodies and more rarely of rounded ones, situated within the red cells.

Fresh Blood Preparations.—Although in fresh blood preparations the organisms are frequently difficult to detect, and at times appear to lie deep in the substance of the red blood-cells, nevertheless with good illumination and an oil-immersion apochromatic objective, they may at times be distinctly observed. In form they are rounded or rod-shaped, though the rods are not always straight in outline. The rods measure approximately from 1.5 to 3 microns in length and the rounded bodies from 0.5 to 1.5 microns in diameter. In severe infections, red corpuscles in almost every field of the microscope are invaded by the parasites, and numbers of both rounded bodies and bacillary forms are frequently observed in a single cell. The organisms are endowed with definite motility, which amounts to slow transition and is totally distinct from that of pedesis. To observe this it appears advisable previously to warm the slide and to examine the preparation immediately after it is made. In red cells in which several of the parasites are visible it is easy to observe their frequent change of position within the cell and with reference to one another. The rod-shaped forms were observed to glide slowly in the direction of their long diameter and to exhibit a slight bending in their transition in the red cell, and at times both these and the rounded bodies might be seen to occupy in turn all portions of it. They were never observed to appear as cross forms, as distinct spirals or markedly S-shaped. Occasionally at the two poles of the organism a dot or bead-like appearance was observed. On account of their small size the rounded bodies are more difficult to describe in fresh specimens and it can

8. Barton: Crón. méd., Lima, 1909, xxvi, No. 481, p. 7.
9. Gastiaburú and Rebagliati: Crón. méd., 1909, xxvi, No. 501, p. 378.
10. Mayer: Centralbl. f. Bact., 1910, lvi, 304.
11. Gastiaburú and Rebagliati: Crón. méd., Lima, 1912, xxix, No. 571, p. 644 and 572, p. 651.
12. Monge: Jour. London School Trop. Med., 1912, i, Part 2, p. 163; Crón. méd., Lima, 1912, xxix, No. 571, p. 640.
13. Nicolle: Ann. d. l'Institt. Pasteur, Vol. 12, 1898., p. 591.
14. Letulle: Compt. rend., Soc. de biol., 1898, p. 764. Oriozola, E.: Monograph la maladie de Carrion, Paris, 1898, p. 201.
15. Escomel: Ann. de dermat. et de syph., 1902, iii, 961.
16. Valerio, Galli: Centralbl. f. Bakteriol., 1911, lviii, Part 1, Orig., p. 228.
17. Darling, S. T.: Verruca Peruana, The Journal A. M. A., Dec. 23, 1911, p. 2071.
18. Barton: Quoted by Darling (Footnote 17).

only be stated that they change their position within the cell.

Stained and Fixed Preparations.—The rod-shaped forms measure approximately from 1 to 2 microns in length and from 0.2 to 0.5 microns in thickness. They are usually curved, and occur singly or end to end in pairs, or in chains of three, four and five. V forms, probably representing dividing organisms, are frequent. When numerous they often lie parallel to one another. Cross forms are rare and may be due to organisms being superimposed; Y forms are also infrequent but not numerous. The ends of the rods in stained preparations are intensely colored. Single free rods show a deep red or purplish granule which may be of the nature of chromatin and gives the appearance of a swelling at one extremity, the rest of the rod having a more bluish tint, sometimes deepest at the opposite end. Other rods may be blue throughout or have the deeply stained granule at both ends, while others are beaded with blue or deep reddish granules.

The rounded forms are roughly from 0.3 to 1 micron in diameter, the larger ones being considerably thicker than any of the rods. The greater proportion of these, although rounded, are slightly oval or pear-shaped; some are considerably larger than the rods and the deeply stained granule is proportionately larger and is likewise differentiated from the more blue-tinted cytoplasm. They occur singly or in groups which suggest previous division.

The red cell may contain from one to as many as thirty of the above-described elements. Nucleated red cells at various stages of development are found infected. From the anemia which occurs in this infection, it is to be presumed that the red cells containing the parasites are ultimately destroyed.

CLASSIFICATION

From the description given above it is evident that we have to do with a species of organism possessing some of the characteristics described for the *Anaplasmata* or of the *Theileria*, but also differing widely in some respects from the characteristics described for each of these genera. The rounded bodies resemble the *Anaplasmata* as first described and illustrated by Theobold Smith[19] in 1903 and later by Theiler[20] in their form and size and in the fact that they apparently consist entirely or almost entirely of chromatinic substance. Although the bacilliform or rod-shaped bodies predominate in our specimens, their appearance and staining reactions are considerably unlike those of the rod-shaped bodies observed in the *Theileria*, and cross forms have not been observed. Moreover, their movements are unlike those of the *Piroplasmata*. While the organism at first sight may be regarded from its morphology alone as a species of bacterium, this idea is not supported by further study. It is essentially a parasite of the red blood-cell; attempts to cultivate it on various culture mediums have been unsuccessful and the inoculation of large amounts of blood from a severe case of Oroya fever has failed to infect a monkey or rabbits.

From the present evidence it would appear that the organism which we have observed in the blood in Oroya fever belongs to a group of micro-organisms intermediate between the protozoa and the bacteria, just as perhaps the spirochetes form another such group. It resembles in its characteristics more closely those given for two species of *Grahamella N. G. Protista* described and classified by Brumpt[21] in October, 1911, although in preparations stained by Giesma's or Wright's stains the presence of reddish-stained granules and of bluish cytoplasm in many forms would favor its relationship to the protozoa. It may be preferable, however, until further information as to its nature is acquired, to follow Brumpt in his classification of *Grahamella*, and to go no further than merely to place this species for the present with the *Protista*. While up to the present we have not had the opportunity of studying the bodies in the erythrocytes of the mole described by Graham-Smith[22] and others and classified by Brumpt as parasites, it would appear from the descriptions in the literature that these bodies constitute an organism of a species closely related to the one which we have encountered in the blood in Oroya fever. As in the genus *Grahamella*, the organism of Oroya fever is characteristically rod-shaped and evidently multiplies by binary transverse division. Apparently, however, the resulting elements do not always separate at once but remain connected in chains of three, four and five. On the basis of this difference and of other additional characteristics such a motility, staining reactions and size, it appears preferable to propose provisionally for the organism studied by us the name of *Bartonia bacilliformis*. The generic name of *Bartonia* is suggested owing to the fact that Barton in 1909 stated his belief that the inclusions earlier observed in the red cells were protozoa.

The genus may be defined for the present as follows: Organisms possessing peculiar staining reactions, cytoplasm and chromatinic substance differentiated with difficulty; rounded or bacilliform in shape, sometimes occurring in chains of several segmenting organisms; reproduction by binary transverse division; endowed with independent motility; and living as parasites in the red blood-corpuscles.

As a type species the parasite of Oroya fever may be briefly described as follows:

Bartonia bacilliformis. Gen. et sp. nov. **Parasites consisting of rounded or oval forms or of slender straight, curved or bent rods occurring either singly or in groups, but characteristically in chains of several segmenting organisms, sometimes swollen at one or both ends and frequently beaded. Reproduction occurs by binary division. Endowed with independent motility, moving in the direction of the long diameter, living within the red blood-corpuscles of man and producing a grave form of anemia known in Peru as Oroya fever. Stained preparations suggest differentiation of cytoplasm and nuclear material.**

VERRUGA PERUVIANA

Verruga peruviana is a disease particularly characterized by an eruption on the skin and occasionally on the mucous membranes, particularly of the mouth and throat. The lesions present great variations in appearance. The distribution of the cutaneous eruption resembles somewhat that seen in yaws; but in many other respects the lesions of the disease are entirely distinct. In uncomplicated cases, neither the parasites of Oroya fever nor those of malaria are present in the blood; though as verruga peruviana is contracted in regions in which Oroya fever and malaria are common diseases among the inhabitants, and visitors are likely to contract such maladies, it is not surprising that concomitant infections with these parasites frequently occur. Indeed, according

19. Smith, Theobald: Reports Bureau Animal Industry, 1891-1892, p. 177, and Plate iv, Figs. 1, 2, 3, p. 302.
20. Theiler: Ztschr. f. Infektionskrankh. der Haustiere, 1910, viii, 39.
21. Brumpt: Bull. de la Soc. pathol. Exotique, 1911, iv, 514.
22. Graham-Smith: Jour. Hyg., 1905, v, 453. Thompson: ibid., 1906, vi, 574. Balfour: Report Welcome Research Laboratory, 1906, ii, 1911, iv; Bull. de la Soc. path. exotique, 1911, iv, 660. Leger: ibid., 1913, vi, 247.

to the statistics of Peruvian physicians, in a large percentage of verruga peruviana cases the blood examinations shows an infection with malarial parasites; and in one of the twenty-two cases of verruga peruviana which we studied a concomitant infection with Oroya fever was observed.

It is quite evident that verruga peruviana represents an entirely distinct disease, and that it is not a form of frambesia or of syphilis. In our studies both of these diseases were excluded. The disease owes its origin to a virus which produces on intratesticular inoculation into rabbits a characteristic local lesion. The incubation period varies in rabbits from ten to twenty-two days. So far fifteen rabbits have been successfully inoculated, and the virus is now in its third transplant in these animals. In dogs and monkeys, cutaneous and subcutaneous, and sometimes intraperitoneal, inoculation has given rise after from eleven to seventeen days to localized lesions, which sometimes resemble closely those observed in man. The virus is also in its third transplant in monkeys. Jadassohn and Seiffert,[23] Mayer, da Rocha-Lima and Werner[24] have also been successful in single cases of verruga peruviana in transmitting the virus to monkeys.

The Wassermann reaction was negative with one exception in the cases of verruga which we examined. Moreover, no fixation of complement could be obtained when a specific antigen was substituted for the antigen used in the routine Wassermann reaction.

The biologic examination of an extract prepared from a cutaneous nodule in a case of verruga showed the presence of a hemolysin which was active in relatively high dilutions. The properties of this hemolysin are still under investigation.

Having become convinced that Oroya fever and verruga peruviana were two entirely distinct diseases, and having secured through the kind assistance of Dr. Matto, professor of bacteriology in the University of Lima, a volunteer (a Chilean), we made a direct inoculation from two cases of verruga peruviana. A portion of a skin lesion from each of the two patients of verruga was removed, and within twenty minutes of the time of this operation the skin of the normal person over the left shoulder was thoroughly scarified, and a portion of the nodules removed from the verruga patients thoroughly rubbed into the scratches. The vaccination scratches healed entirely at the end of about ten days, and the skin appeared normal. On the sixteenth day two small groups of cherry-red papules at the end of some of the vaccination scratches appeared, and a few days later another small group became visible. These increased slowly in size until the thirty-fifth day, when two of the groups were removed. The blood examination of the vaccinated person never revealed any of the parasites observed in the blood of Aroya fever cases, and no appreciable anemia developed. No generalized eruption occurred and the person was in good health at the time of our departure from Lima. It seems hopeful that by using the virus of verruga peruviana after one or two passages through the rabbit's testicle, or possibly through several more in monkeys, a successful means of vaccination against verruga peruviana may be obtained.

UTA

Uta is a disease which has existed in Peru since prehistoric times, and the lesions of which have been supposedly depicted on the ancient huacos of the Incas. It has been stated by various authorities that the disease represented a form of syphilis, or one of prehistoric leprosy, or a special form of lupus vulgaris. In recent years two extensive monographs on the subject have appeared from Peru, one by Tamayo[25] in 1908 and the other by Palma[26] in 1909. Tamayo regarded the disease as a special form of lupus vulgaris. Palma concluded that it was a specific disease, which was not to be confounded with other South American maladies, and that it was not a form of tuberculosis. The disease was observed by Past-Assistant Surgeon Perry, United States Public Health Service, in his travels through Peru; and by Surgeon-General Blue who, in conversation with one of us prior to our departure, mentioned its occurrence among the schoolchildren of Surco, one of the Peruvian mountain towns in which the disease occurs abundantly. In both Surco and Otao (the latter town deriving its name from the prevalence of the disease there) a large proportion of the inhabitants are either afflicted with the disease, or show the disfiguring scars which have resulted from a previous attack, on the face, arms or legs. From our investigations we were able to show that uta is due to a species of Leishmania. The flagellate stage of the organism has been obtained by us, and animals have been successfully inoculated from a human case.

ACKNOWLEDGMENTS

In connection with the investigations of the commission we wish to express publicly our thanks, particularly to the Corporation of Harvard University for generously providing funds for the maintenance of the expedition and to the dean of the Harvard Medical School and the dean of the Graduate School of Medicine for their interest and assistance in the organization of the expedition; to the United Fruit Company of Boston for generously furnishing us with transportation from New York to Colon and return; to the Royal Mail Steamship Company and the Pacific Steamship Navigation Company for furnishing us free transportation from Balboa to Guayaquil and from Callao to Balboa, and to the Panama Railroad Company for courtesy in regard to handling our baggage across the Isthmus. We also wish to express particularly our gratitude to Mr. J. W. Blaisdell, assistant manager of the Central Railroad Company of Peru, who very generously on several occasions furnished us with special railway facilities in our studies carried on between Lima and Oroya, and to Dr. H. F. Bailey, Cerro de Pasco Railway, for many kindnesses during our expedition from Oroya to Cerro de Pasco. To the following physicians and officials we wish to express our grateful acknowledgment for many kindnesses and for assisting us in obtaining material in connection with our studies: Drs. Deeks, Perry, Caldwell, Darling and James in Panama; Dr. Parker, Consul General Baker and Dr. Pereja and other officials of the Board of Health in Guayaquil; to President Billinghurst of Peru and to the American minister, Mr. Henry Clay Howard, the introductor of ministers, Mr. Cisneros, and Drs. Odriozola, Arce, Grana, Barton, Hercules and Matto in Lima. We also wish to express our great appreciation of the very valuable assistance rendered us by Dr. J. C. Tello, director of the ethnologic museum, Peru, in facilitating our obtaining material and in assisting us in making arrangements in regard to some of our investigations. Without Dr. Tello's assistance some of our investigations would probably not have been brought to so successful an issue as they were. A more detailed statement of our appreciation of the kindness shown us by a number of the above-mentioned physicians will be made in the complete report of the expedition. Finally, we wish to express our deep appreciation of the efficient services rendered by Miss Nora Dwyer, who accompanied us as secretary on the expedition.

23. Jadassohn and Seiffert: Ztschr. f. Hyg. u. Infektionskrankh., 1910, lxvi, 247.
24. Mayer, Rocha-Lima and Werner: München. med. Wchnschr., 1913, lx, 739.
25. Tamayo: La Uta en el Peru, Lima, 1908, p. 1; Proceedings IV the Pan-American Congress, Santiago de Chile, December, 1908.
26. Palma: Boletin del Ministerio de Fomento, 1908, vi, No. 10, p. 1.

THE TRANSMISSION OF VERRUGA BY PHLEBOTOMUS

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LIMA, PERU

The following are the data, in brief, relating to the first case of experimental transmission of verruga[1] accomplished through the medium of any bloodsucker. The bloodsucker used was *Phlebotomus verrucarum* (Townsend), a biting gnat occurring in the verruga zones of the Peruvian Andes.

Two hairless dogs of the species *Canis caraibicus* (Lesson), male and female, each about 1½ years of age, secured in Chosica, April 24, 1913, were admitted to the verruga laboratory on that date, since which time neither one has left the laboratory at any time, the two having been kept chained side by side continuously. The female was used for the transmission, while the male was reserved for the check.

Up to July 10, 1913, the general condition of the female had been perfect. Examination of her blood made June 15, showed nothing abnormal. The rectal temperature, taken daily since May 3, varied from 37 to 39.4 C. (98.6 to 102.9 F.), with an average of 38.6 C. (101.5 F.). She had always been robust, and extraordinarily full of animation.

On the afternoon of July 11, 1913, I injected the female subcutaneously in the right shoulder with 1 c.c. of artificial serum containing the triturated bodies of twenty females of the *Phlebotomus*, collected on the night of July 9-10 in Verrugas Canyon, none of which showed any sign of blood-meal in the alimentary canal.

The rectal temperatures of this dog, taken daily at about 11 a.m. and 5 p.m., were as follows:

	A. M.	P. M.
July 11	38.6	37.5 (after injection)
July 12	39.1	38.7
July 13	38.7	38.9
July 14	38.9	39.1
July 15	37.7	38.6
July 16	38.6	38.35
July 17	37.8	38.5

These temperatures indicate nothing abnormal, but are an important part of the clinical history of the case.

July 16 the dog was noted to be decidedly thin and weak, ribs showing plainly, very little appetite, almost entire lack of animation, and very sensitive to handling. Blood-smear made on that date showed a limited number of endoglobular bodies closely approximating Barton's x-bodies, some endoglobular and a large number of exoglobular bodies closely similar to the x-bodies figured by Darling, extremely numerous remains of broken-down red corpuscles and many nucleated reds.

July 17 there appeared a typical eruption of the nodular type on the superior surface of the right hind foot, the papules being in the incipient stage and not yet developed into subspherical nodules, six of the papules being well colored, while numerous others with little color were present on both the right and left hind feet.

On the morning of July 18 the six papules showed deeper color. Blood-smear made at the time, from point well removed from the eruption, showed the same very numerous remains of broken-down reds as that of July 16, and a large number of the exoglobular bodies approximating the x-bodies of Darling, but practically no endoglobular x-bodies.

On the morning of July 19 the dog was still thin in flesh, but appeared much stronger and almost as animated as usual. The eruption was practically the same, except that it appeared less deeply colored. The best colored papule was opened and a smear made from it, which showed, besides some nucleated reds and many remains of broken-down reds, a considerable number of bodies bearing a certain resemblance to *Leishmania*, but lacking the kinetonucleus and manifestly not that organism. I have found the same type of bodies in the *Phlebotomus*, and shall present description and drawings of them later. The exoglobular x-bodies were also present. A smear made at the same time, from a point removed from the eruption, showed remains of broken-down reds, but not in such abundance as July 16 and 18.

The check dog to date has showed nothing abnormal in either his blood, temperature, skin or general condition, but has remained absolutely the same in all respects. Blood-smear made July 18 showed no broken-down reds and no x-bodies either endoglobular or exoglobular.

Aside from this being the first experimental demonstration of the insect transmission of verruga, the case is of great interest from the clinical point of view. The practical absence of fever, while unusual, has been noted a good many times; but the remarkably short period elapsing between infection and eruption claims especial attention. There are several points to be considered in this connection. First of all, it appears quite certain, from various experiments, that dogs are less susceptible to verruga infection than man. Verruga cases graduate from the extremely benign with little or practically no fever to the extremely malignant with high fever, the latter in the majority of cases terminating fatally before the eruption can appear. When there is little fever, sensitiveness of the joints is noticeable. The miliary eruption and its derivative, the pseudomular, are usually distinctive of the malignant class; while the nodular and its derivative, the mular, are characteristic usually of the benign class. The less susceptible the subject, the more benign is the form of the disease exhibited. Thus the present case is to be considered as belonging to the extremely benign class. The type of eruption and the sensitiveness of the joints conform to this, which is unmistakably indicated by the practical absence of fever. Since the eruption ordinarily follows close on the heels of the fever, it is natural to suppose that the less fever there is the sooner the eruption should appear. This fact, taken in connection with the supposedly strong dose of the virus injected, and its evident full degree of toxicity, would tend to explain the suddenness of the eruption in the present case.[2]

An important indication just hinted at, that has come to the surface during the course of the present investigation, and which bears especially on verruga transmission experiments as heretofore practiced, is that, quite certainly, man is not the normal host of the verruga organism. As a rule, much difficulty has been experienced in producing the disease in laboratory animals by injection of blood and serum from verruga patients. This I believe to be due to the attenuated toxicity of the organ-

1. I wish to insist on the proper spelling of the name of this disease. Verruga is the name commonly applied to the disease in Peru, and the name has been adopted into the English unchanged. Verruga is therefore to be considered an anglicized word. The term *verruca* (Latin for wart) used by some authors, means specifically the ordinary wart and not the disease under consideration.

2. Since the preceding was written I have encountered at Verrugas Canyon a case of benign verruga in a 10-year-old boy, in which the nodular eruption began to appear within seven days from first infection by *Phlebotomus*. The case exhibited true mular eruption later on. Prior to the eruption there was practically no fever, but much pain in the joints.

ism for other animals after it has run its course in man. In the vector, the verruga organism, having come direct from the blood of the native reservoir fauna, and having probably undergone sexual regeneration in the meantime in the intermediary host, should possess its full degree of toxicity; hence experimental transmission should be far more easily accomplished in laboratory animals by injection of the vector than by injections of verruga material from man.

I announced some weeks ago that I had been able to demonstrate *Phlebotomus* as the verruga carrier on entomologic evidence alone, the details of which have recently been published.[3] The present experiment is here recorded in order to furnish the details of the transmissional demonstration. While many more transmission experiments will be carried through as soon as possible, it must be acknowledged that this initial one allows the statement of absolute certainty as to *Phlebotomus verrucarum* being the vector of verruga.

Verruga Laboratory, Chosica, Peru.

Report of an Instructive Case of Snake-Bite.—The wounds in this case were inflicted by a "ground-rattler," a member of the *Sistrurus* genus, family *Crotalidae*. The patient, a mulatto, aged 6, fairly well-nourished, was brought into the house about 8 a. m. within two minutes of being struck on right toes by a snake. An Esmarch bandage was at once applied around right thigh, about a hand's breadth above the knee, tightly enough to stop the circulation completely below the constriction within four minutes of the wound being received. A hypodermic of morphin 1/8 grain, strychnin 1/40 grain and atropin 1/200 grain was given to counteract the pain, possible depression and fright. The foot was washed and examined, two fang punctures being found on the back of second phalanx of middle toe. This toe was freely incised with ten incisions barely through the true skin, and a large compress of boric acid powder thickly mixed into cotton and wet thoroughly was applied to lower half of foot. The constrictor was completely removed at the end of fifteen minutes and left off until the limb below the constriction assumed a pinkish tinge (usually from thirty to sixty seconds), and then reapplied as before, completely shutting off circulation. This removal and reapplication was repeated at intervals of fifteen minutes for eight hours. About 10 a. m. patient vomited; vomitus was reported normal in appearance, but not seen by me. About 4 p. m. the boric pack was removed, and the constrictor taken off permanently. The outer side of the foot was slightly swollen; the fourth toe (next to the incised toe) was swollen to about three times its normal size, was dark, and on its inner aspect presented a circular patch of blue skin about the size of a dime, in the center of which was a puncture. The patch of blue skin covered a patch of completely digested tissue which, when removed with a blunt spoon, left a cup-shaped wound about half as deep as it was broad. The line of difference between the digested tissue and the normal tissue was quite sharp, the digested tissue being reddish-black and of about the consistency of soft cheese, the normal tissue firm and bleeding. The toe incised freely was normal in size and color and showed a third fang puncture, which had been overlooked at first, opposite the necrosis on the fourth toe. Apparently the snake had struck twice, one wound having been overlooked at first. The incised toe, after eight hours normal in appearance except for the incisions, must have received about three times as much venom as the swollen necrosed unincised toe. Except for the nausea (which may have been due to the morphin) there were no constitutional effects discernible at any time. There were no ecchymoses either then or later. Hence the arrest of the circulation seems to be the essential element in the treatment, the incisions and poultice merely beneficial.—E. C. Day, M.D., Paso Robles, Cal.

3. The Ghost of Verruga, Peru To-Day, July, 1913, p. 840.

Therapeutics

ORAL CLEANLINESS

Before discussing this subject it will be well to review some of the conditions that we are aiming to prevent, modify or heal. The more we learn of germ diseases and infections, and the more we carefully trace such diseases to their origin or their source of entrance to the body, the more frequently we find the teeth, mouth, gums and tonsils the ports of entry of these germs. Not only does an acute infection like inflammatory rheumatism generally enter the body in this manner, but also several serious blood-diseases, many gastro-intestinal disturbances and much chronic general debility are due to various pus germs harbored in the gums, in the cavities of teeth or in pockets of degenerated tonsils. Many infected mouths date from some serious illness, and it has repeatedly been stated that the ability and efficiency of a nurse can be told from the condition of the mouth of the patient.

It has too long been believed that a serious illness caused of itself degeneration of the teeth, either cavitation or actual loss. While there are many of the elements of nutrition that are needed for the teeth to remain healthy, neglect of the mouth and teeth is probably the larger factor in their degeneration. Tartar forms, inflammation begins and pus-pockets develop around the teeth when they are not properly cleansed and the gums are not properly cared for.

If the patient is so ill that he cannot allow brushing of the teeth either by himself or by the nurse, the gums and teeth should be cleansed by rubbing or spraying with the liquids selected. A great source of cleanliness for the teeth is chewing, which is more or less in abeyance during serious sickness, but we are learning that in most of the prolonged acute diseases the patient is able and willing to chew such a simple thing as dry toast. This alone cleanses the teeth, starts the saliva and normal mucous flow, and frequently offers a better food than the constant swallowing of even nutritious liquids. If the ordinary simple cleansing lotions are not sufficient to prevent the formation of pus or ulcerations, various applications to the regions of trouble should be made, and perhaps none is better than the tincture of iodin, or, if that is considered too severe, a modified solution of iodin as follows:

		gm. or c.c.		
℞	Iodi	1		gr. xv
	Potassii iodidi	3	or	gr. xlv
	Glycerini	30		fl ʒi

M. Sig.: Use externally as directed.

The value of dilute alcohol washes, such as one part of alcohol to four or five parts of water, should not be forgotten. Alcohol is astringent, cleansing and antiseptic. Sometimes potassium chlorate solutions, though very disagreeable, are most healing when the whole mucous membrane of the mouth is more or less inflamed. If there are no pockets in which hydrogen peroxid may form bubbles and cause an extension of ulceration, there is no mouth-wash more antiseptic and more efficient than diluted hydrogen peroxid solution, as one part of hydrogen peroxid solution to three or four parts of warm water. Immediately after the use of hydrogen peroxid solutions a mild alkaline solution should be used to wash off the froth caused by the peroxid action and also to remove the acid irritation caused by such action.

If the mouth is dry during illness, some slightly pungent substance may be taken, to be either chewed or swal-

lowed, such as some effervescing water, ginger ale, some pungent mint chewing-gum, or even a simple peppermint lozenge. Of course the value, in such conditions, of vegetable sours such as lemonade, orangeade or a piece of orange is well understood. These will increase the mouth secretions and prevent drying of the mucous membrane, which is such a frequent cause of ulceration.

Various preparations of glycerin diluted with water, with or without boric acid or borax, or boroglycerid, or milk of magnesia, are all valuable in preventing or aiding in the healing of a sore mouth.

If the tincture of iodin does not heal an ulcer or fissure, one or two applications of either the stick nitrate of silver or a 25 per cent. solution, applied by means of a swab, will generally cause healing.

If the patient is too ill for strenuous or perfect cleanliness of the mouth, as soon as convalescence is established extra care should be given the mouth and teeth.

It should not be considered that a patient has been thoroughly examined until the condition of the mouth has been investigated. As before stated, too many chronic diseases have their source and continuation from diseases of the gums or from neglected, decayed teeth, to say nothing of diseased tonsils. A fetid, bad breath should always be investigated, as it is generally due to a chronic inflammation in the mouth. While a large portion of adults over 40 have more or less pyorrhea alveolaris, a large number of these patients may have the condition entirely prevented, and by various methods to-day many patients are cured of what was long considered an incurable condition.

Riggs' disease is a disease of the bone, really an alveolitis, and if the process continues the alveolar process becomes so damaged that the teeth become loosened and are lost. This serious condition begins at the juncture of the teeth with the gums, and perhaps the most frequent cause is neglected tartar acting as an irritant and allowing inflammation to start in the gum tissue. While tartar deposits are not abnormal to most mouths, it must be removed frequently in order that the teeth and gums will not be injured. If it remains long it becomes hard, and although the irritation from it may not always cause inflammation on account of a healthy person constantly producing antitoxins of various types to ward off and combat pus infection, still such deposits are always sources of danger, and even if a well person tolerates such irritants, if he becomes ill, infection of the gums rapidly begins. If the gums become really inflamed, they naturally swell and may pout away from the teeth. This allows the mouth secretions, saliva, food and germs to become lodged deep in the pocket between the swollen gum and the teeth, and serious inflammation is the result.

The danger from infected cavities in teeth is perhaps understood by patients, and if not understood, more or less frequent attacks of severe pain causes them to seek a dentist for treatment of such conditions; but the laity does not thoroughly understand the danger from infected gums, especially as they may not be attended by pain. Consequently we must teach in schools and in families how important is hygiene of the mouth. Regular visits to the dentist are as important as any other branch of preventive medicine. Besides efficiency in their treatment, the dentists are to-day doing splendid educational work in preventing the development of pyorrhea alveolaris.

Prevention of the disease means at least twice daily brushing of the teeth carefully with a brush stiff enough to remove the first soft deposits of tartar and to remove particles of food that remain on or between the teeth. The particular tooth-paste or powder selected depends on the individual choice. It should not be too soapy to prevent removal of soft tartar deposits. It should not be harsh enough to injure the enamel.

Recent investigations by Gies[1] of Columbia seem destined to revolutionize our belief in regard to what sort of substances are best to use in cleaning and preserving the teeth. He emphasizes the fact that the direct factor in decay of the teeth is acid, and this acid is believed to be lactic. Mucin films depositing on the teeth may retain this acid or acid-yielding material and thus continue the acid irritation, and this acid later "dissolves the calcium and other inorganic matter from the enamel," and later penetration of the dentin occurs. Of course during this process micro-organisms develop more or less and add to the local disturbance.

Gies has found that so-called antiseptic mouth-washes and alkaline washes do not wash off or dissolve this adherent mucin, and therefore are not effective in preventing decay of the teeth. He quotes Pickerill[2] and a discussion in the New York Academy of Medicine[3] and Dr. Howe[4] and records his own investigations to show that the vegetable acids, such as diluted vinegar and the fruit juices and their acids, are the most successful cleansing substances that can be used on the teeth. These investigators all state that a diluted vinegar is perfectly successful as a cleanser of the teeth. They also believe that starches and sugars should never be eaten alone, but should be certainly followed by some acid substance, as some of the acid fruits or some of the vegetable sours. After most meals, therefore, it is good sense to eat a little fruit, and on going to bed perhaps the most successful cleanser of the teeth is a little sour fruit or diluted fruit vinegar.

Children and patients should also be taught to brush the gums as well as the teeth, and when it is needed a patient should be taught to massage the gums. The use of wooden toothpicks to remove particles between the teeth that cannot be removed by the tooth-brush should be approved.

Many patients' teeth are so close together that particles of food remain lodged between them and cannot be removed in any other way. Dental floss should certainly be used occasionally, or frequently, if possible. If inflammation actually occurs in the gums or around a tooth, the advice and care of a dentist are needed.

When mouth-washes and the proper use of iodin by the dentist do not cure a pyorrhea, some success has been obtained from the use of autogenous vaccines.

Germs may be swallowed into the stomach, where they are more or less constantly killed, but they may not always be killed, and they may pass to the intestine and there grow and be absorbed or cause some local inflammation, such as appendicitis.

Another frequent source of danger from such mouth germs is absorption into the lymph-vessels. They may thus be a cause for enlarged cervical lymph-nodes which attempt to arrest the spread of the infection. These lymph-nodes may not only get into serious trouble themselves, but may sooner or later allow the poison or germs to be absorbed into the blood, and then systemic infection begins.

(To be continued)

1. Gies, William J.: Household Arts Review, May, 1913, p. 12.
2. Pickerill: Bailliére, Tindall and Cox, London, 1912.
3. Jour. Allied Dental Soc., 1912, vii, 397 and 474.
4. Howe: Jour. Allied Dental Soc., December, 1912, p. 277.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, NOVEMBER 8, 1913

A NEW INDICATOR OF PATHOLOGIC TISSUE CHANGES

In the modern investigation of neoplasms which is being pursued so vigorously it has been of fundamental importance to ascertain the specific peculiarities of the abnormal tissues. When once it is made clear precisely wherein pathologic growths differ from the normal tissues which they accompany or supplant, and what are the stimuli which initiate and promote their development, a great step in advance will have been taken. So far as the morphologic features are concerned much valuable information has long been at hand; but after all, structural anomalies are merely the formal expression of alterations due to physical or chemical changes either within the cells themselves or in their immediate environment. The solution of the underlying problems of the development of neoplasms is closely bound up with the knowledge of the inciting causes. The possibility of an artificial inhibition or retrogression of such growths is likely to rest on similar information.

Actual chemical analysis of neoplasms has as yet thrown little light on their individuality. When biologists first pointed out how sensitive living cells are to slight alterations in their environment, how readily they respond in most diverse ways to changes in the proportions of the inorganic elements, for example, which bathe the protoplasm, hopes ran high for rapid progress in the study of tumor growth. But blood and lymph and tissue juices exhibit extreme intricacies of composition in almost endless details. The make-up of these body fluids is continually undergoing changes which represent themselves in new equilibria of reaction; so that it is almost as difficult to postulate from moment to moment what is the normal of such complex mixtures as it is to detect the deviations therefrom. If, indeed, the difficulties of exact estimation of the inorganic components of the tissues are considerable, the detection of foreign organic compounds such as may represent products of pathologic change is incomparably more difficult. Nor is the situation made easier by the fact that profound biologic change is often inaugurated by extremely slight chemical provocation. The phenomena of anaphylaxis, which seem almost to baffle chemical skill in their interpretation owing to the minute quantities of actual reagent substances involved, bear witness to this fact.

Whenever the investigation of a scientific problem reaches a complexity which taxes the resources of current methods the advent of new or improved modes of diagnosis and of novel indices of altered conditions are welcomed. In this spirit we refer to the unique yet simple biologic method which Professors Underhill and Woodruff of Yale University have adopted to demonstrate pathologic changes that may arise as the result of chemical disturbances.[1] Arguing that the complications which are involved in employing the complexly organized higher animals as test subjects for the detection of abnormalities in tissue extracts, etc., are considerably diminished when the organism is reduced to the lowest terms, the single cell, they have introduced the unicellular animal, paramecium, as an indicator of pathologic alterations in tissues. The justification for this is based on the fact that in "pedigreed" races of this protozoan the rate of reproduction is a most accurate indication of the chemical composition and temperature of the environment, as remarkably slight variations in the culture medium produce characteristic responses by the animals. Indeed, the rate of reproduction may be said to be a function of the environment of the cell.[2]

The plan of the Yale investigators was essentially to compare the rate of reproduction of suitable subcultures of paramecium bred on extracts of comparable normal and pathologically altered tissues or organs. Such a procedure is obviously not without pitfalls, and calls for an abundance of well controlled statistics. It is not without interest to note incidentally that the particular "biologic reagent" employed in this instance was the pedigreed race of *Paramecium aurelia* which Professor Woodruff has had under daily observation for more than six years and through more than 3,700 generations.[3] To test the efficiency and limitations of the protozoan protoplasm as an indicator of pathologic change, preliminary investigations were conducted with normal and nephritic kidneys. These were satisfactory in that they failed to indicate changes due to purely physiologic or anatomic circumstances. Thus there was no essential difference in the division rate of paramecium when subjected to the influence of extracts prepared from the separate kidneys of one animal or from kidneys of different individuals. Extracts made from the kidney of a starving animal behave in a manner identical with those from a well-fed one. On the other hand, the division rate is markedly depressed by the renal extracts of individuals with tartrate nephritis, with every evidence that the pathologic change in the kidney tissue itself (rather than tartrate

1. Underhill, F. P., and Woodruff, L. L.: Protozoan Protoplasm as an Indicator of Pathologic Changes. I. In Nephritis, Jour. Biol. Chem., 1913, xv, 385; II. In Carcinoma, ibid., p. 401. An abstract of these papers will be found in The Journal A. M. A., Oct. 4, 1913, p. 1325.

2. Woodruff, L. L.: Biochem. Bull., 1912, i, 396; Woodruff, L. L., and Bunzel, H. H.: Amer. Jour. Physiol., 1909, xxv, 190; Woodruff, L. L., and Baitsell, G. A., ibid., 1911, xxix, 147.

3. See Woodruff, L. L.: Biologisches Centralbl., 1913, xxxiii, 34.

accumulated in the organ) is responsible for the action observed on paramecium.

Although there is reason to suspect that in carcinoma abnormal products may arise through the local development of the neoplasm and then exert a remote detrimental effect on the organism as a whole, there has been little compelling evidence for this assumption. Underhill and Woodruff have applied their protozoan test method in the study of primary carcinoma of the human breast as a characteristic type of abnormal growth. In so far as one may judge from the observations on a limited number of cases, extracts of such neoplasms, in certain concentrations, show a very pronounced depressant influence on the division rate of paramecium when compared to that obtained with the same protozoan race bred in normal mammary tissue extract. In some instances the depressant influence may be so profound as to lead to the death of the paramecia within two or three days. Underhill and Woodruff are convinced that the differences in concentration which may exist between the normal and abnormal breast tissue extracts cannot be held responsible for the detrimental action of the abnormal extracts on paramecium; for when the concentrations of the two extracts under discussion are made as nearly equal as possible the depressant phenomena still appear in the carcinoma extracts.

It is too early to theorize at length on the possible significance of such striking results. They may, of course, be due to the absence or to a deficiency in the solutions of substances essential for the life processes of paramecium, or to the presence of substances inimical to protoplasm. If the latter hypothesis is correct, it is possible, as the investigators themselves point out, in view of the probable greater concentration of these substances in the neoplasm, that their absorption may contribute to the production of the symptoms characteristic of the development of cancerous growths in man. An efficient new method of study is almost always likely to yield a rich harvest of applicable facts. The present interesting findings encourage us to look forward to additional contributions along these promising lines in the widely cultivated field of cancer research.

ANOMALIES OF SUICIDE

Speculation has been concerning itself with the motives in the minds of those unfortunates who find it necessary to end their earthly sorrows in some violent manner. How important a feature this is in the total mortality list is shown by the fact that about fifteen thousand lives a year are lost in the United States by this route. The suicide-rate for 1912, according to Hoffman,[1] for the hundred largest cities of the country, comprising a total population of 23,336,000, is somewhat less in 1912 than in 1910 and 1911, and considerably less than the rate in 1909 and 1908, which chronicled a much larger number of suicides than usual, probably because of business troubles consequent on the panic of 1907.

One thing clear about suicide statistics is that their number has been in direct ratio to the number of business failures. While the 1912 suicide-rate is somewhat consoling, the five-year rate as compared with each five years for the last twenty years shows how much suicides are increasing. The average suicide-rate for the five years from 1908 to 1912 was 20.2 per hundred thousand of population; for the five-year period from 1893 to 1897 it was 15.7. If any of the contagious diseases had a mortality-rate nearly one-third higher now than it had twenty-years ago, we should be much discouraged unless there was some promising method of prophylaxis in view.

Suicides are not most frequent in those parts of the country in which one would naturally expect them to be. Usually suffering is considered the most important factor in leading to suicide and therefore it would be expected that the cities with the largest variations of temperature, especially those subject to the extremes of heat and cold, would present the highest suicide mortality. Almost exactly the opposite is true. The three cities that head the list are in California—San Francisco with a suicide-rate of 50 per hundred thousand of population, San Diego with more than 40, and Sacramento with 37. Then comes Hoboken, N. J., with 34, followed by Los Angeles with 32 and Oakland, Cal., with 31, St. Louis coming in between the last-named two. All of the cities of California, then, have a high suicide-rate. Hoboken's rate is doubtless so high, partly because of its large Teutonic population, but much more because a number of those who contemplate suicide in the great city near it go across the Hudson River in the hope of escaping identification or at least avoiding the publicity likely to come in New York.

The cities of the country having the lowest suicide-rate are in the oldest-settled portions, especially in the South and in New England. In the last twenty of the hundred cities Massachusetts has eleven towns with a suicide-rate of 10 or less per hundred thousand. Augusta, Ga., has the lowest rate, 3.7, and the fourth from the end of the list is Charleston, S. C. Williamsport, Pa., has the unique distinction of having had no suicide during 1912, and during the preceding decade the rate was only about 9 per hundred thousand, or less than one half the average for the hundred American cities at large. Exceptionally low rates prevailed for the decade in Elmira and Newburgh, N. Y., Orange, N. J., Savannah, Ga., and Johnstown, Pa. Indeed, their rates are so low that Mr. Hoffman suggests a doubt as to the absolute accuracy of the returns, for there is more or less of a tendency to classify suicides as accidents in the absence of a precise coroner's verdict to the contrary. The cities of the West and middle West have as a rule a much higher suicide-rate than those of the East and South. Springfield, Ill., is seventh on the list, while the first Eastern city is McKeesport, Pa., which with its large foreign population is sixteenth on the list. Chicago is

1. Hoffman, Frederick: The Spectator, Oct. 2, 1913.

twenty-first with a suicide-rate of 22.2 for the decade, while New York with its very mixed population has the same average as the whole country for the decade, 20.2. Atlantic City, N. J., is in the same class.

Suicides also occur most frequently at an unexpected time of year. It is not on damp, dark days which would naturally add to the depression of those who already have dark thoughts and consequently lead to suicide, but in the month of June that most suicides are recorded. It has been shown over and over again by the comparison of suicide records of cities with reports of their weather bureaus that suicides were considerably more frequent on bright, sunny days than in dark, cloudy weather. December has the lowest suicide-rate of the year. It is psychic, not physical, depression that tempts to suicide. The moment at which there is a deep feeling of the contrast between their own unhappiness and what they imagine, at least, to be the happiness of others, is the time chosen by the discouraged to end it all and get away from what to them is unbearable.

The highest suicide-rate is not found among the very poor, but among the well-to-do. Very few suicides are absolutely without resources. Even those who have failed in business are often not among the absolutely ruined, but among those who have lost a considerable amount of money, yet retain ample to begin life on a more moderate scale or to enable them to take up their business once more and make a success of it. They are as a rule much better off than when they began their business career. Many of them carry insurance and have kept up payments on it; hence the interest of life-insurance companies in the subject.

Insurance companies would gladly assist in any movement that would bring about a lessening of the loss of life from suicide by which a needless and heavy burden is placed on life-insurance policy-holders through the enforced payment of claims often long before the attainment of normal expectation. Mr. Hoffman points out how much economic and social dependence with serious consequences to the taxpayers of the several states must result from these self-murders, and he suggests that "in an age which concerns itself so generally with the problem of the conservation of natural and human resources it would seem that the time has come for a more intelligent public interest in what is, without question, one of the greatest moral and social problems of the time."

We should take more interest in these problems. So long, however, as every suicide is reported with all its lurid details in the newspapers, the story acting as a constant source of suggestion to those who are in depression though only on the border-line of irrationality, little improvement can be hoped for. A large proportion of our suicides now are imitative. During the past year many have followed the unfortunate death from mercuric chlorid. Every new mode of death is thus imitated. The first and most important factor in the movement for the decrease of suicide must come through a better treatment of the question of publicity in these cases.

NUTRITION IN PARIS

Whenever the cost of living increases we are at once brought back to the ever-recurring question as to the ideal ration for man. Communities and even nations, like families, become accustomed or adjusted, as it were, to certain modes of living, in which are included their dietary habits and choice of foods. To speak of nutrition in certain countries without mention of rice would appear quite as extreme as to plan a dietary in the United States without the inclusion of bread of some sort. Such national food habits are doubtless dictated at the start by economic and agricultural considerations. Even within small circumscribed geographic areas the eccentricities of diet customs are exemplified in striking ways. The differences between the range and derivation of the menus of an ultra-fashionable restaurant and the bill-of-fare of the modest "dairy lunch"—the preponderance of high-priced cuts of meat and animal foods with relatively few examples of pastry dishes in the one, and the evident popularity of lactovegetarian meals in the other—make one wonder whether there are, after all, any fundamental dietary laws that can be laid down for people in general. We can scarcely assume that large groups of the population would voluntarily subsist for any length of time on dietaries which were manifestly inadequate for their nutrition. Yet here are the striking contrasts side by side in the routine observation of small and large communities alike.

Physiologists have propounded certain dicta regarding the nutritive needs of man and expressed them both in terms of familiar nutrients and in units of energy, calories. How these have been arrived at need not concern us seriously here. In part it has been by direct feeding experiment to ascertain the limits at which permanent gains or losses to the bodily economy result, and in part by statistical methods whereby the actual food consumption of individuals and groups has been noted and the averages thus gained taken as an index to the probable needs of the human organism. On the whole, the agreement of these two methods, the experimental and the statistical, has been surprisingly close. Recently we discussed some of the limitations to which the free choice of a dietary may be subjected by extraneous circumstances.[1] The collection of suitable statistics throughout the world cannot fail to add useful information as a basis for larger dietary programs, precisely as the study of special groups (laborers, poorer classes, prisoners, etc.), has indicated limitations that need to be recognized by authorities who deal with public problems of nutrition.

The French bear the reputation of being a well-nourished or at least a well-fed nation. This is sustained by the data collected by Gautier,[2] one of the French experts in the field of nutrition study. His figures have an

1. The Nutrition of the Poor, editorial, The Journal A. M. A., Sept. 27, 1913, p. 1046; The Food Factor in Some Sociologic Problems, The Journal, Oct. 18, 1913, p. 1463.

2. Gautier, A.: Rectification de quelques préjugés sur l'alimentation normale, Bull. Soc. sc. d'hyg. aliment., 1913, iii, 121.

exceptional value and added interest because they represent the findings not of a single day or week, but of no less than two decades. The statistics are those of food consumption on the part of the great majority of the inhabitants of Paris—the "average" inhabitants—derived from public records of taxes paid on foodstuffs and from actual investigation among peasant or "bourgeois" families. In consideration of the long period over which the records apply and the large numbers of people involved —nearly three millions—the discrepancies between rich and poor, undernourished and overfed, are probably in good part equalized. Here are the figures, expressed as a daily average: obtained from vegetable sources: bread, 420 gm.; green vegetables, 250; cereals, 40; potatoes, 100; sugar, 40; fresh fruits, 70; alcoholic beverages, 432; from animal sources: meats, 200 gm.; eggs, 24; cheese, 8; butter and oil, 28; milk, 213; to which may be added salt, 20 gm., and water, 950. When these are translated into terms of the familiar nutrients they furnish a daily total of proteins, 97 gm.; fats, 58 and carbohydrates, 418, with an energy value of over 2,500 calories. This accords well with established "standards" for the average man. Incidentally national characteristics are emphasized in the relative proportions of foods consumed as, for example, the liberal use of bread. Despite such incidental variations, the actual nutrient intake of peoples seems to be much the same the world over.

THE RAILWAY TRESPASSER

So much does the spectacular attract the public mind that the killing of a dozen people in a single railway accident calls forth throughout the country newspaper extras, the first page flaring with headlines. Yet, states Mr. Dow,[1] the general safety agent of the New York Central lines, more than that number of persons, fourteen daily on an average, have been killed while trespassing on railway property; and for every one thus killed another has been injured, in general seriously—maimed or crippled for life. Nor are all such persons tramps, negligible derelicts, who would not have been crushed to death under the railroad cars had they been about some worthy business. Only 25 per cent. of railway trespassers are tramps. According to Interstate Commerce Commissioner C. C. McChord,[2] the casualties, taking under consideration a period of twenty years, were suffered by: 25,000 young people (victims of their elders' neglect), all under 18, many under 10—children playing behind or "hitching" on cars or picking coal from the tracks; 36,276 of the sometimes unjustly berated tramps; 120,103 citizens, men and women, mostly wage-earners going to and from work, heads of families, people whose homes were in the vicinity. The total number of railway employees and passengers killed each year is less than the total number of railway trespassers killed.

Apart from their tragic connotation with death and suffering, Dow rightly asserts that such figures illustrate accurately the great economic loss suffered by the country through the negligence of our sanitarians, educators, legislators and humanitarians, who, in their laudable effort to prevent disease, to promote the observance of health laws and the study of eugenics, have side-tracked, so to speak, the issue of railway trespass.

There are two chief remedies advanced by Dow for the evil of the unlawful track-walker—education and legislation. He would have public-school children taught a careful, systematic and definite plan of safety—a plan to be graphically presented, which should be extended to every industrial concern situated near a railway—because such workers furnish by far the most trespassers and victims. As to legislation, there are statutes at present in some states which make trespassing on railway property a misdemeanor and punishable by a fine or a jail sentence; but there is no uniformity in the laws and, indeed, even where such laws exist, it is difficult to obtain the conviction of a trespasser. Many people find humane motives in a railway corporation hard to believe in; certainly, however, the presentment of Mr. Dow, a railway company representative, has this wholesome flavor. His company gains nothing thereby. Such a corporation is not liable when a trespasser is hurt or killed; nor are the tracks injured by any one walking on them. The engineer, also, whose heart is as human as another's, should be considered, for it is his paramount duty to concentrate his attention on his work and to protect from disaster the passengers in his care. One may well sympathize with him whose engine had struck and fatally injured a track-walker: "there were tears in his eyes and his hand trembled as he nervously passed it over his forehead in a gesture of despair and said, 'Such things get my nerve. I wouldn't kill a dog if I could help it; and there is hardly a day when my heart is not in my mouth a dozen times on account of people walking the tracks where I run, barely escaping getting caught by me.'"[3]

Current Comment

MORE FRIEDMANN "CURE" ADVERTISING

In the New York *Sun* for October 26 appeared a brief news item in the form of a cable dispatch from Berlin. It was to the effect that Professor Frederick Kraus, a Berlin internist, had expressed a favorable opinion regarding the use of the Friedmann serum in surgical cases. A few days after this notice appeared, mimeographed copies of the newspaper article were sent broadcast over the country by the Standard Distributing Company, Room 506, 90 West St., New York City. This address, even to the number of the room, is that from which the "Friedmann Institute of New York, Inc.," was doing business a few weeks ago. The cable dispatch and the way in which it is being used but further empha-

1. Dow, M. A.: A Nation's Neglect, *The Outlook*, Sept. 27, 1913.
2. Quoted by Dow: *The Outlook*, Sept. 27, 1913.
3. Quoted by Dow: *The Outlook*, Sept. 27, 1913.

size the wretchedly commercial spirit that actuates this whole miserable Friedmann business. To the careless reader, and especially to the reader of headlines, the newspaper article gives the impression that the Friedmann "cure" has been proved of value in consumption. As a matter of fact no such statement is made. But relying on the inevitable carelessness of the common reader and the notorious optimism of the consumptive, this report is scattered broadcast as another move in the Friedmann advertising campaign. What though the tuberculous be tortured once more with false hope—what is another turn of the rack—when dollars are at stake?

SOME FEATURES OF STAINING TECHNIC

In some of their most important practical operations the bacteriologist and the histologist have long since adopted technical methods which are largely based on a sort of refined empiricism. Culture mediums are made up according to approved formulae of which the rationale would be difficult to define; and the microscopic worker employs an outfit of selected stains which somehow furnish differential results despite the ignorance which attends their uses and reactions. It is almost needless to say that none of these practices will rest on firm foundations until the principles underlying their application are unearthed, examined and clearly understood. The rapid progress of biochemical research is already leading to a better appreciation of what some of the long-accepted phenomena really mean. An illuminating instance may be cited in the case of micro-organisms. The group of acid-fast bacteria derive this designation from their peculiar behavior to dyes. They can as a rule be stained with aqueous solutions of anilin colors only with great difficulty. As is well known, Robert Koch succeeded in his demonstration of the tubercle bacilli because of the unique tinctorial responses of the latter in tissue sections. Ehrlich found that tubercle bacilli which were stained with anilin dyes dissolved in anilin water were not decolorized by treatment with strong acid. This fact occasioned the introduction of the expression "acid-fast." Ehrlich and others assumed that the resistance to color removal by acids is due to the presence of difficultly permeable capsules or membranes in those organisms which manifest the acid-fast properties. Still other investigators, however, have expressed the conviction that the special tinctorial features of the acid-fast group are attributable not to the impervious nature of the cell-structure but to unique chemical compounds having specific affinities for certain dyes. The dominance of the latter viewpoint is now assured by the studies of Tamura.[1] These show that not only the acid-fast and alkali-fast properties of two typical organisms, *Bacillus tuberculosis* and *Mykobacterium lacticola perrugosum*, but also their positive behavior to the Gram stain, are due to the presence of an alcohol, mykol, in their cells. This substance has a comparatively high molecular weight with an indicated formula $C_{29}H_{50}O$, and is doubtless in part present in the bacterial body as an ester of some higher fatty acid. The chemical features here recited remind one at once of the higher alcohol cholesterol which also plays an important rôle in connection with many types of both animal and plant cells. It is precisely such information as this just published from the laboratories of Profs. A. and H. Kossel at Heidelberg that promises to take the practice of bacteriologic technic out of the domain of laboratory magic and put it on a secure scientific footing.

1. Tamura, S.: Zur Chemie der Bakterien, I, Ztschr. f. physiol. Chem., 1913, lxxxvii, 85.

RED NOT A SATISFACTORY DANGER-SIGNAL

Red has been the sign of danger and a warning signal since the earliest times. Just why it was selected as a danger-warning is a question for the anthropologist and historian to determine. It is unfortunate that this color, which is becoming increasingly important with the growing danger of accidents in civilized life, is the color to which many human eyes are insensitive. Color-blindness is apparently becoming more common. In its most frequent form, it is impossible for the color-blind person to distinguish red from green, yet those two colors, which are the most confusing to the human retina, are the very ones which are in most common use as signals for danger and caution. So common is red and green color-blindness that all licensed pilots, masters of vessels, engineers, firemen, motormen and others employed in directing vessels, trains, trolley-cars and other means of transportation are required to submit to a color-test and to prove that they possess an accurate degree of red-green color perception. The simple expedient of selecting as a sign of danger a color to which practically all human eyes are susceptible has only recently been suggested. *Drugs, Oils and Paints,* in a recent issue, contains an article by Dr. Francis D. Patterson, suggesting a new signal to take the place of the familiar red warning. Patterson calls attention to the fact that the number of industrial accidents is at present enormous and is apparently increasing. As approximately one male in every twenty-five has a deficient color perception and as most of these have an impaired sensibility for red, Dr. Patterson argues that the retention of this color as a danger-signal is simply inviting further increase in accidents. His objection is based on the fact that many persons are color-blind to red and are consequently not only barred from any occupation in which a color perception is necessary, but are also deprived of the protection from accidents and danger supposed to be offered by danger-signals. He also objects to red for practical reasons; it is a fugitive color, difficult to distinguish, fading on exposure to sunlight and requiring frequent repainting. The possibility that red and green color-blindness will increase rather than diminish in the future only serves to emphasize the unfitness of these colors as signs of danger and caution. Experiments with the spectrum and with color-blind persons, as well as with various colors at different distances, leads Patterson to the conclusion that yellow and blue are the best colors for danger signals, as he says that they are the only colors which give rise to a normal color-sensation as soon as they become visible, are the most luminous colors of the spectrum, and are permanent and fast, while color-blind persons react normally to them. It has long since passed into a proverb that it is easier to change the laws of the people than to change their customs. The fact that many persons are unable to distinguish red from

other colors should alone be sufficient to cause it to be discarded as a danger signal. Whatever color is adopted should be selected after the most careful physiologic and optical investigation.

PENNYROYAL, TANSY AND OTHER "EMMENAGOGUE" OILS

Because of its inherent interest to many physicians who still assume that a number of oils, including products like pennyroyal, are efficient emmenagogues and abortifacients, we recur to the subject on the occasion of additional evidence now available.[1] Some of these drugs are still official in the United States, the British and other pharmacopeias. Macht has now reported the added details of his study of the effect of these substances on the isolated uterus. The following oils were examined: oleum hedomae (pennyroyal), oleum sabinae (savine), oleum tanaceti (tansy), oleum rutae (rue), oleum thymi (thyme), oleum terebinthinae (turpentine) and apiol. They have no specific or directly stimulating action whatever on the uterine muscle; on the contrary, they inhibit the contractions of the uterus and even paralyze it. It ought to be clear then, once for all, that if these oils exhibit any "emmenagogue" or abortifacient phenomena whatever in the organism it is due to a general constitutional poisoning or gastro-intestinal irritation and not to any specific action in accord with the intent with which they are sometimes administered.

CARELESSNESS AND DIPHTHERIA

The office of the Georgia State Board of Health at Atlanta was recently compelled to close by an epidemic of diphtheria among the officers and employees. Ten persons were affected. Only the secretary and one other physician escaped the disease. The secretary of the board is reported to have said that the disease was contracted from specimens which were so carelessly prepared by the physicians who sent them in that no indication was given of what the packages contained. Ordinary envelopes, it is said, were sent in containing portions of membrane placed between pieces of cardboard or paper; other envelopes contained cotton swabs which fell out when the package was opened. Even if this were not a violation of the postal laws, it is almost inconceivable that physicians could be so careless as to send in this manner material as deadly as dynamite or an infernal machine. It not only constituted a danger to the persons in the office of the health board, as the sequel proved, but it was also a menace to every one handling the mail *en route*. The responsibility of physicians in handling such material is great and the utmost precaution should be observed.

HEALTH TOPICS FOR WOMEN'S CLUBS

The influence of women's clubs on public health questions has been steadily increasing. Now that they have covered the field in a general way, there arises a demand in women's organizations for more accurate knowledge on the important problems of public health. Recognizing that the state board of health exists for the purpose of serving the people of its state in every way possible, the secretary of the Kansas State Board of Health has prepared an outline for the use of women's clubs in studying health questions. This outline, issued in a small leaflet, will prove of immense value in directing the work of the women's clubs desiring to take up this line of activity. Under foods and drugs appears a study of foods, including their preparation and preservation, a discussion of a proper ration and selection of foods, food adulteration, the sanitation of food supplies, drug adulteration and drug addiction. Rural sanitation, school sanitation and hygiene, the cost of preventable disease, the disposal of waste and the conditions for a pure water-supply are some of the topics included in the outline. Reference to bulletins, government publications, journals and books are also included. In directing the attention of women's clubs to these topics and in furnishing them a logical outline of work to be followed, the Kansas State Board of Health is not only doing a great service to the people of its state, but is also building up an educated following which will greatly improve the effectiveness of the work of the board itself.

1. Macht, David I.: The Action of So-Called Emmenagogue Oils on the Isolated Uterus, THE JOURNAL A. M. A., July 12, 1913, p. 105; The Action of So-Called Emmenagogue Oils on the Isolated Uterine Strip, Jour. Exper. Pharmacol., 1913, iv, 547.

Medical News

ALABAMA

Personal.—Dr. W. M. Faulk, Tuscaloosa, has been elected treasurer, and Dr. J. L. Williamson has been reelected a member of the Board of Trustees of the Alabama Bryce Hospital, Tuscaloosa.——Dr. C. L. Guice has been elected president of the Gadsden Chamber of Commerce.——Dr. R. F. Elrod, Cottonton, is under treatment in a hospital in Montgomery on account of injuries received in a mowing machine accident. ——Dr. D. F. Talley has been made medical director of the Sun Life Insurance Company of America, Birmingham.——Dr. R. D. Jackson, Birmingham, fell in front of his home recently, fracturing his hip.

New Officers.—Jefferson County Surgical and Gynecological Society, at Birmingham, October 25: president, Dr. E. P. Hogan, and secretary, Dr. E. P. Solomon, both of Birmingham. ——Russell County Medical Society, at Hurtsboro, October 21: president, Dr. W. B. Hendrick, Hurtsboro; secretary-treasurer, Dr. R. C. Williams, Ratchehubbee; county health officer, Dr. R. B. McCann, Seale.——Marion County Medical Society in Hamilton, October 8: county health officer, Dr. R. L. Hill, Winfield.——Baldwin County Medical Society, at Bay Minette, October 8: president, Dr. C. L. Mershon, Fairhope; vice-president, Dr. W. N. Moore, Daphne.

CALIFORNIA

New Officers.—San Bernardino County Medical Association at Redlands, October 14: president, Dr. B. F. Church, and secretary, Dr. C. G. Hilliard, both of Redlands.

State Board Election.—The initial meeting of the State Board of Medical Examiners was held in Sacramento, October 14. W. W. Vanderburgh, San Francisco, was elected president; Dr. Fred F. Gundrum, Sacramento, vice-president; Dr. Charles B. Pinkham, San Francisco, secretary, and Dr. H. E. Alderson, San Francisco, treasurer.

Personal.—Dr. C. A. Wright, formerly police surgeon of Los Angeles, was seriously injured October 20, when his wheel chair was struck by a street car.——Dr. J. M. G. Carter, Los Angeles, fell recently, fracturing several ribs.——A luncheon was given by the Associated Charities of San Francisco October 30, in honor of Dr. William Palmer Lucas, physician-in-chief of the children's department of the University of California Hospital. Dr. Robert Langley Porter of Stanford University delivered the address of welcome.

Hospital News.—The contract has been awarded for the construction of a four-story and basement, reinforced concrete hospital building at Eighth and Cedar streets, San Diego, to

cost $250,000.——A tract of 305 acres near Norwalk has been purchased as a site for the new State Hospital for the Insane, to be erected in Southern California, for which $140,000 was appropriated by the last legislature in addition to the funds necessary for the purchase of the site.——The directors of the Fullerton Hospital have voted to increase the capital stock of the institution from $10,000 to $50,000.

COLORADO

New Officers.—Eastern Colorado Medical Association at Ray, October 20: president, Dr. E. A. Clarke, Akron, and secretary-treasurer, Dr. E. D. McGill, Wray. The next meeting will be held in Akron.

Personal.—Dr. Eleanor Lawney, Denver, has gone to California for the winter.——Dr. Elsie Seelye Pratt, Denver, has been appointed a member of the Health Service Bureau of the University of Michigan.——Dr. E. W. Emery, Denver, was overcome by gas in his garage, October 1.——Dr. G. P. Lingenfelter, Denver, has been appointed a member of the visiting staff of the Denver County Hospital.

DELAWARE

Hospital News.—At a meeting of the Physicians and Surgeons' Hospital Association, Wilmington, October 22, it was announced that the present hospital site had been purchased from the Helen Bowe estate for $11,000. Dr. J. P. Pyle is president, Dr. Benjamin R. V. Beasey, vice-president; Dr. B. Allen Jenkins, secretary, and Dr. Smith Cooper, treasurer of the association.

State Society Meeting.—The one hundred and twenty-fourth annual meeting of the Delaware State Medical Society was held in Dover, October 14 and 15, under the presidency of Dr. L. A. H. Bishop, Dover. The following officers were elected: president, Dr. William P. Orr, Lewes; vice-presidents, Drs. T. H. Davis, Farnhunt, and William Marshall, Milford; secretary, Dr. G. W. K. Forrest, Wilmington (reelected); treasurer, S. C. Rumford, Wilmington (reelected); councilor, Dr. James H. Wilson, Dover; delegate to the American Medical Association, Dr. H. W. Briggs, Wilmington, and trustee of the state medical journal, Dr. George W. Marshall, Milford. The following names were submitted to the governor from which to select members of the Medical Examining Board: Drs. H. W. Briggs, Wilmington; John Ball, HocKessin; George W. Marshall, Milford; Roland G. Paynter, Georgetown; Robert Ellegwood, Delmar; W. H. Kraemer, Wilmington; P. S. Downs, Dover; E. S. Dwight, Smyrna; James Beebe, Lewes, and Joseph W. Bastian, Wilmington.

ILLINOIS

New Officers.—Knox County Medical Society at Galesburg, October 23: president, Dr. Albert C. Keener, Altona; secretary-treasurer, Dr. George S. Bower, Galesburg.

Addition to Sanitarium.—The new addition to the Prince Sanitarium, Springfield, will be occupied by Drs. Frank P. Norbury and Charles L. Patton. The first floor will be used for offices and the second floor and basement for sanitarium purposes.

State Board Meeting.—At the first meeting of the new Illinois State Board of Health held in Chicago, November 3, it was announced that the policies of the late board as regards prosecution of violators of the medical practice acts of Illinois and the enforcement of the laws of sanitation, will be continued by the new board. Dr. George W. Webster, Chicago, was continued as president of the board.

Personal.—Dr. William A. Young, Springfield, who has been ill for several months, is reported to be convalescent.——Dr. and Mrs. Malcolm C. Roe, Chana, celebrated their fiftieth wedding anniversary, October 21.——Dr. Charles A. Wilcox, Amboy, who underwent operation in a hospital in Dixon recently, has returned home, recovered.——Dr. Oscar B. Ormsby, Murphysboro, has gone to Rochester, Minn., for a surgical operation.——The home of Dr. Horace H. Sheets, Oregon, was seriously damaged by fire October 25.——Drs. Carl E. Black, Elmer L. Crouch and George H. Stacy have moved their offices to the Ayers Bank Building, Jacksonville.——Dr. Louis B. Jolley of North Chicago fractured his arm while cranking his automobile recently.

Chicago

Roentgen Society Organized.—The Chicago Roentgen Society was organized October 24. Dr. Hollis E. Potter was elected president and Dr. James T. Case, secretary.

Swift's Surgeons to Meet.—The plant surgeons of Swift & Co. will meet in convention in Chicago, November 11 to 13, at the general offices of Swift & Co., Union Stockyards. Papers will be read covering general surgical and medical subjects, one of the most notable of which will be on "The Importance of Detecting Infectious and Contagious Diseases, Particularly Tuberculosis, Among Employees."

Examination Postponed.—The civil-service examination for attending dispensary physicians in the dispensary department of the Chicago Municipal Tuberculosis Sanatorium, originally scheduled for Oct. 28, 1913, has been postponed to Nov. 24, 1913. The examination is open to all physicians residing in Chicago. Particulars may be obtained from the secretary of the Civil Service Commission, Room 610, City Hall, Chicago.

Gynecologists Hold Meeting.—At the annual meeting of the Chicago Gynecological Society, October 17, the address of the evening was delivered by Mr. Leonard A. Busby, president of the Chicago City Railway Co., and the following officers were elected: president, Dr. Frank W. Lynch; vice-president, Dr. Henry F. Lewis; secretary, Dr. Robert T. Gillmore; treasurer, Dr. Charles B. Reed; editor, Dr. W. A. Newman, and pathologist, Dr. Arthur H. Curtis.

Personal.—Dr. Robert Sonnenschein has returned from Europe.——Dr. Otto L. Schmidt has been reappointed a trustee of the Illinois State Historical Library.——Dr. A. Arkin, formerly a member of the staff of the Otho S. A. Sprague Institute for Medical Research, and of the Department of Pathology in the University of Chicago, has been appointed professor of pathology and bacteriology in the Medical School of West Virginia University, Morgantown.

Sanatorium Corner-Stone Laid.—The corner-stone of the Sanatorium for Advanced Cases of Tuberculosis, an institution under the patronage of the Jewish Consumptive Relief Society, was laid October 19. The building, which is under construction at North Fiftieth and Belmont Avenues, will cost $50,000 and is intended as a place of treatment for patients in advanced stages of the disease, who on this account would not be admitted to other tuberculosis sanatoriums. Dr. Theodore B. Sachs will be in charge of the institution.

Public Safety Commission Organized.—The Public Safety Commission of Chicago and Cook County, which was organized recently, has appointed committees containing the following physicians: Industrial Accidents—Dr. A. M. Harvey; Electric Railway Accidents—Dr. Harold N. Moyer; Educational—Drs. W. E. Buehler and A. M. Harvey; Criminal Operations—Drs. E. R. LeCount, chairman; Harold N. Moyer, C. W. Hopkins and W. E. Buehler; Drowning, Homicides, Suicides—Dr. W. E. Buehler, chairman, and Drs. E. R. LeCount, Harold N. Moyer and C. W. Hopkins.

Clinical Congress of Surgeons.—The clinical congress of surgeons of North America will be held in Chicago, November 10 to 15. Dr. E. Wyllys Andrews is chairman of the committee of arrangements. In addition to the clinical demonstrations, whose name is legion, which are to be held in the various hospitals of the city, there will be eight evening sessions at which papers will be read and discussed. The opening meeting will be held November 10, in Orchestra Hall, at which Dr. Edward Martin, Philadelphia, the retiring president, will deliver an address. The president, Dr. George E. Brewer, New York City, will be inaugurated, and will deliver the presidential address, and Drs. Harvey Cushing, Boston, and John B. Murphy, Chicago, will read papers. On November 11, in Orchestra Hall, Sir W. Arbuthnot Lane, London; Mr. Herbert J. Paterson, F.R.C.S., London; Dr. Carl Beck, Chicago; Dr. John B. Deaver, Philadelphia, and Dr. A. J. Ochsner, Chicago, will present papers. The meeting November 12 will be held in the Gold Room of the Congress Hotel. At this time Prof. Dr. Kroenig of Freiburg, Germany; Dr. Howard Kelly, Baltimore; Dr. C. J. Gauss, Freiburg, Germany; Dr. Roswell Park, Buffalo; Dr. Dean D. Lewis, Chicago; Dr. John F. Binnie, Kansas City, and Dr. Jasper Halpenny, Winnipeg, Man., will speak. The evening of November 13 will be devoted to the consideration of cancer. The meeting will be held in Orchestra Hall. Dr. Thomas S. Cullen, Baltimore, will present the report of the Cancer Campaign Committee of the Clinical Congress of Surgeons of North America, and Mr. Samuel Hopkins Adams, New York City; Dr. Edward Reynolds, Boston; Dr. Frederick R. Green, Chicago; Mr. Frederick L. Hoffmann, Newark, N. J.; Dr. James Ewing, New York City; Dr. C. J. Gauss, Freiburg, Germany, and Dr. Joseph C. Bloodgood, Baltimore, will present papers and reports dealing with various phases of the subject. On November 14, in the Gold Room of the Congress Hotel, Dr. Hugh Cabot, Boston; Dr. Arthur Dean Bevan, Chicago; Dr. John M. T. Finney, Baltimore; Dr. E. Wyllys Andrews, Chi-

cago; Dr. Charles H. Mayo, Rochester, Minn., and Dr. George W. Crile, Cleveland, will take part in the program.

In the division of surgical specialties, evening sessions will be held on November 11, 12 and 14 in the Louis XVI Room of the Hotel Sherman. On the first evening Dr. Edward Jackson, Denver; Drs. C. H. Beard, George H. Fiske, Chicago; Dr. Harold Gifford, Omaha; Drs. E. V. L. Brown and J. Brown Loring, Chicago; and Lieut. Col. Robert H. Elliott, I.M.S., superintendent of the Government Ophthalmic Hospital, Madras, India, will make addresses. On the second evening Dr. G. Hudson-Makuen, Philadelphia; Drs. W. E. Casselberry and Elmer L. Kenyon, Chicago; Dr. Viray P. Blair, St. Louis; Drs. Arthur D. Black and Herbert A. Potts, Chicago, will read papers. On the third evening Dr. Frederick Whiting, New York City; Drs. Frank Allport and Joseph Beck, Chicago; Dr. Philip D. Kerrison, New York City; Drs. George E. Shambaugh and J. Gordon Wilson, Chicago, will speak.

November 13, at 6 p. m., the Alumni of Rush Medical College will hold a dinner at the Hotel Sherman, which will be Rush Alumni headquarters during the congress. At the same time the Alumni of the College of Medicine of the University of Illinois will hold a banquet at the University Club, 76 E. Monroe Street. The headquarters of this organization will be the Illinois Club, 314 South Federal Street.

NEW YORK

Physician Wins Suit.—In the suit of Percy Palmateer, Spencerport, against Dr. Lewis E. Slayton, in which $30,000 damages was claimed on account of the death of the wife of the plaintiff from alleged mercurial poisoning, the jury decided in favor of Dr. Slayton.

Cancer Institute Opens.—The Hospital of the State Institute for the Study of Malignant Diseases, Buffalo, was formally opened November 1. Dr. Roswell Park, Buffalo, and Hon. Charles Fairchild, formerly Secretary of the Treasury, spoke for the trustees of the institute, and Dr. James Ewing, professor of pathology in Cornell University, delivered an address on "The Cancer Research Hospital."

Personal.—Dr. Frank W. Spaulding, Clifton Springs, is spending the winter on the Pacific Coast.——Dr. Joseph Moore of the staff of the Manhattan State Hospital has been appointed first assistant physician at the Matteawan State Hospital. Dr. Daniel W. Nead, medical examiner for the Pennsylvania System at Buffalo, has been transferred to be medical examiner at Reading, Pa., and Dr. John H. Brewster has been appointed medical examiner at Buffalo.

New Officers.—Medical Association of Central New York at Auburn, October 30: president, Dr. George M. Price, and secretary, Dr. John J. Buettner, both of Syracuse. Mr. Samuel Hopkins Adams addressed the association on "Quackery and the Public Press."——Physicians' Club of Batavia, October 23: president, Dr. Emerson E. Snow, and secretary-treasurer, Dr. Victor M. Rice.——Madison County Medical Society at Oneida, October 14: president, Dr. William T. Tanner; secretary, Dr. George W. Miles, both of Oneida.——Ulster County Medical Society at Kingston, October 7: president, Dr. Frank Keator; secretary, Dr. John R. Gillette, both of Kingston.——First District Branch of the New York State Medical Society at Yonkers, October 9: president, Dr. Henry Lyle Winter, Cornwall; secretary, Dr. Charles E. Denison, New York City.——Broome County Medical Society at Binghamton, October 7: president, Dr. S. Halsey Stevens, Union; secretary, Dr. H. De Witt Watson, Binghamton.

New York City

Celebrate Centennial.—The Riverside Practitioners Society held its one hundredth regular meeting and centennial dinner at the Hotel Manhattan, October 28.

New Instructors.—Drs. E. David Friedman, John H. Wyckoff and Mills C. Sturtevant have been appointed instructors in medicine in the University of Bellevue Hospital Medical College.

Dispensary Corner-Stone Laid.—The corner-stone of the new dispensary of the Hospital for Deformities and Joint Diseases on Madison Avenue and East One Hundred and Twenty-Third Street was laid with proper ceremony, November 4.

Lowest City Death-Rate.—The death-rate for this city for the week ending October 18, was the lowest ever recorded in the history of the health department. It was 11.20 per 1,000 population. The number of deaths for the week was 1,153, as against 1,243 for the corresponding week of 1912. One of the noticeable features of the report was the drop in infant mortality.

Seaside Hospital Inspected.—The Woman's Auxiliary of St. John's Guild made the arrangements for an inspection tour of the Seaside Hospital for Infants and Children at New Dorp, Staten Island, on October 29. As the pressure on the city hospitals is so great, the Seaside Hospital is to be kept open as a convalescent hospital during the winter season. The new wards provide for heart cases, orthopedic cases, maternity cases and general convalescents. One of the interesting features of the hospital organization is that it is conducted in neighborhood groups as far as possible.

Society to Celebrate Fortieth Anniversary.—The New York Laryngological Society will celebrate the fortieth anniversary of its organization this month. This society was the first of its kind to be established, antedating all societies in Great Britain or the continent by more than ten years. In 1898 the society was merged with the New York Academy of Medicine, becoming the Section of Laryngology and Rhinology. The formal meeting has been arranged to be held at the Academy of Medicine, at which addresses will be given and a bronze tablet and other memorials commemorative of the occasion will be presented.

OHIO

Public Health Service.—The state and municipal boards of health, together with the Anti-Tuberculosis League, will soon cooperate with the public health service in an investigation of tuberculosis in this city, which will include the relation of the disease to the various industries.

University of Cincinnati, Medical Department.—Not a little importance is attached to the appointment of Dr. Frank B. Cross, Tuesday, November 4, as vice-dean and secretary of the medical department. Dr Cross has acted as secretary of the Medical Civics Association since its origin, is a well-known ophthalmologist, and has done some very effectual organization work in medical circles in Cincinnati.

Personal.—The Cincinnati Academy of Medicine has elected Dr. Albert Freiberg, chairman of the Committee of Arrangements for the Mississippi Valley Medical Association, which will meet in Cincinnati next October.——Dr. Adolph Schmidt, Halle, Germany, addressed the Academy of Medicine, November 3, on "Diarrhea and Constipation." Dr. Schmidt has opened up new fields for the study of intestinal diseases by means of his original investigation, and has enriched medical literature with several very useful and comprehensive contributions. His address was clear, concise and full of interest to all present.

PENNSYLVANIA

Insane Asylum Dedicated.—The new state institution for the insane, located near Pottsville, was dedicated October 30. The new institution, when completed, will have cost approximately $600,000, and will accommodate 600 patients.

New Officers.—Central Pennsylvania Branch of the Jefferson Alumni Association at Altoona, October 16: president, Dr. Henry H. Brotherlin, Hollidaysburg; secretary, Dr. Charles F. McBurney, Altoona.——Somerset County Medical Society at Rockwood, October 21: president, Dr. George C. Berkheimer, Windber; secretary, Dr. Henry C. McKinley, Meyersdale.

Hospital News.—In a whirlwind campaign, $100,000 was raised for the General Hospital of Braddock.——The congregation of the Sacred Heart of Jesus, Allentown, has purchased the home of the late Judge Edward Harvey, and will establish a hospital to be conducted by the sisters of St. Francis.——The new tuberculosis hospital at the county poor farm near Connellsville was opened October 16.

Personal.—Dr. John L. Bower, medical examiner for the Pennsylvania System at Reading, has been transferred to be medical examiner at Broad Street Station, Philadelphia, vice Dr. E. C. Town, deceased.——Dr. Samuel G. Dixon, state health commissioner Harrisburg, who was operated on recently at the University Hospital, Philadelphia, is convalescent and has gone to Atlantic City.——Dr. Ivor D. Fenton has resigned as a member of the staff of the State Hospital, Fountain Springs, and will practice in Mahoney City.——Officers and employees of the department of health and charities, Pittsburgh, gave their former director, Dr. E. R. Walters, a complimentary banquet, at which he was presented with a 31-foot rowing shell.

Philadelphia

Personal.—Drs. Joseph M. Rosenthal and Wilfrid B. Fetterman were injured in a collision between the motor-car in which they were riding and a trolley-car, October 25.——Dr. James T. Rugh has been appointed consulting orthopedic sur-

geon at the Philadelphia General Hospital, vice Dr. H. Augustus Wilson, resigned.

Physicians as a Social Force.—At a reception given by the Medical Club of Philadelphia to President Hibben of Princeton University, October 17, he appealed to physicians to cooperate and help the social forces at work to-day to make saner men and minds through the elimination of degenerate social conditions.

Philadelphia Joint Lecture Course.—The Rush Society for the Correlation and Support of Medical and Biological Lectures in Philadelphia has entered into an agreement with the committees controlling the Mütter Lecture and the Weir Mitchell Lectures at the College of Physicians of Philadelphia, the lectures of the Philadelphia Pathological Society and the two lectures supported by undergraduate organizations at the University of Pennsylvania. In another year it is hoped that as a result of present efforts, this list of cooperative committees may be further extended to include the lecture of the John Morgan Society and the Gross Lecture of the Jefferson Medical College. The Samuel D. Gross Lecture, before the Philadelphia Pathological Society, October 23, opened the course. The next one will be the fifth Rush Society Lecture, on November 18, at 8:30 p. m., by Frederick L. Hoffman, of the Prudential Insurance Company of America, on "The Incidence of Cancer by Organs and Parts of the Body Affected," at the College of Physicians Building, Twenty-Second Street above Chestnut. The medical public is invited to attend.

TEXAS

Medical Buildings.—At the meeting of the Harris County Medical Society in Houston, October 3, the question of a medical office building for Houston was discussed.

New Public Health Association.—The Texas Antituberculosis Association, at its meeting in Austin, October 16, made arrangements to pay the debt on the Walter Colquitt Memorial Hospital for Tubercular Children, Galveston; pledged cooperation with the State Health Department and decided to change the name of the association to the Texas Public Health Association.

Hospital News.—The Physicians and Surgeons' Hospital has been organized at El Campo.——The Sherman Hospital has received its charter. At a meeting of the stockholders, October 10, Drs. E. J. Neathery and O. C. Ahlers were elected directors, and at a meeting of the directors Dr. Neathery was elected president and Dr. Ahlers secretary-treasurer. It was announced that the new building, which is being erected at a cost of $50,000, will be completed by December 15.

Medical Society Notes.—Dr. W. N. Wardlow, Corpus Christi, councilor of the Sixth Medical District, visited Kingsville October 9, and organized the Kleberg County Medical Society as a component society of the State Medical Association.——Dr. Orville Egbert, Beeville, has been elected secretary of the Bee County Medical Society, vice Dr. W. E. Sfurgis, San Angelo, who has removed from the county.——The retiring chairman of the Fort Worth Physicians' Luncheon Club has named Dr. W. C. Lackey as chairman, Dr. Crittenden Joyes, vice-chairman, and Dr. Pierre Higgins secretary-treasurer.

Personal.—Dr. and Mrs. J. W. Harvey, Sunset, were injured by the overturning of their automobile, October 4.——Dr. H. G. Heanye, Corpus Christi, recently underwent an operation for appendicitis in Galveston, and is reported to be doing well.——Dr. Edward S. Ruth has been appointed instructor in anatomy and Dr. C. F. McClintic instructor in physiology in the medical school of the Southern Methodist University, Dallas.——Dr. Henry C. Hartman, formerly assistant state health officer, has been appointed professor of pathology in the State Medical College, Galveston, vice Dr. J. J. Terrill.——Dr. T. M. Sherman has been elected vice-president of the Farmers' Guaranty Bank, Kennard.

New Officers.—Eighth District Medical Association, at Wharton, October 14: president, Dr. S. A. Foote, and secretary, Dr. P. E. Parker, both of Bay City. It was decided to hold the next meeting in conjunction with the Ninth District Medical Association at Houston.——Leon County Medical Society, at Marquez, October 14: president, Dr. S. R. Burroughs, Buffalo; secretary-treasurer, Dr. V. L. Smith, Jewett. The next meeting will be held in Buffalo.——South Texas Medical Association, thirty-fourth semi-annual meeting at Beaumont, October 10: president, Dr. E. F. Cooke, Houston, and secretary-treasurer, Dr. W. F. Thompson, Beaumont. The next meeting will be held in Port Arthur.

GENERAL

Tuberculosis Day.—Churches, schools, labor unions, fraternal orders and other organizations have been asked to join the antituberculosis workers of the country in the observance of the fourth annual national tuberculosis day, which has been set for November 7.

New Union District Officers.—At the annual meeting of the Union District Medical Association, held in Oxford, Ohio, October 25, the following officers were elected: president, Dr. D. W. Stevenson, Richmond, Ind., and secretary, Dr. William A. Thompson, Liberty, Ind.

Students of Criminology Organize.—At the meeting of medical, sociologic and psychologic scientists, held in Indianapolis, October 13, noted in THE JOURNAL of October 25, page 1547, the organization adopted the name of the American Association of Clinical Criminology.

Railway Surgeons Meet.—The Atlantic Coast Line Surgeons' Association held its seventh annual meeting in Montgomery, Ala., October 14 and 15, and elected the following officers: president, Dr. J. N. Baker, Montgomery, Ala.; vice-presidents, Drs. A. M. Brailsford, Mullins, S. C., and P. P. Lane, Waycross, Ga.; and secretary-treasurer, Dr. C. P. Aimar, Charleston, S. C. (reelected).

Anti-Disease Society Organized.—The New England Society for the Prevention and Treatment of Diseases was organized recently with an initial membership of twenty-five, and the following officers were elected: president, Dr. Andrew F. Christian, Boston; vice-president, Dr. Melville Jackson, Portland, Me.; secretary, J. J. Higgins, Boston, and treasurer, George L. Lupe, Boston. A series of twelve lectures, offered to the public, is being given on Sunday evenings at the hospital of Dr. Christian, Marlboro Street, Boston. The first lecture was given November 2.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of Pennsylvania, Philadelphia, $50,000, by the will of Miss Anna Blanchard.

University of Pennsylvania, $15,000, to endow three beds in the children's orthopedic ward; Philadelphia Home for Incurables, $5,000, by the will of Mrs. R. L. Bringhurst.

For a new hospital to be erected at Albania, $10,113, in payments and subscriptions.

Hospital in China Needs Woman Physician.—The Board of Foreign Missions of the Presbyterian Church announces that a woman physician is needed for the Presbyterian Hospital and dispensary at Tsinanfu, Shantung Province, North China, 300 miles south of Peking. The hospital was opened in 1899, but has been closed periodically for the last three years owing to ill-health of the physician in charge, and a woman with thorough medical training, considerable experience and practice, a sound constitution and good health, good sense and tact, is urgently required. Support is said to be adequate, including salary, traveling expenses, living quarters, etc., and is provided by the mission board. Correspondence regarding this matter should be addressed to Wilbert B. Smith, 600 Lexington Avenue, New York City.

Award of Hodgkins Prize.—On the recommendation of the Committee on the Award of the Hodgkins Prize of $1,500 for the best treatise "On the Relation of Atmospheric Air to Tuberculosis," which was offered by the Smithsonian Institution in connection with the International Congress on Tuberculosis held in Washington in 1908, the institutioa announces that the prize has been equally divided between Dr. Guy Hinsdale of Hot Springs, Va., for his paper on "Tuberculosis in Relation to Atmospheric Air," and Dr. S. Adolphus Knopf of New York City, for his treatise "On the Relation of Atmospheric Air to Tuberculosis." The members of the Committee on Award were: Dr. William H. Welch, Johns Hopkins University, Baltimore, Maryland, chairman; Dr. Hermann M. Biggs, New York City; Prof. W. M. Davis, Cambridge, Mass.; Dr. G. Dock, Washington University Medical School, St. Louis, Mo.; Dr. Simon Flexner, Rockefeller Institute for Medical Research, New York City; Dr. John S. Fulton, Baltimore, Md., and Brig. Gen. George M. Sternberg, U. S. Army (retired), Washington, D. C.

CANADA

Infant Mortality in Ontario.—One out of every ten children born in Ontario dies before reaching 5 years of age. In 1912, 8,230 children under the age of 5 years died, of which 6,494 were under 1 year, a rate of 110.3 per 1,000 births. There were 200 less deaths from diarrheal diseases than in 1912.

The Fight against Tuberculosis in Ontario.—The death-rate from tuberculosis in Ontario continues to decrease. Although

the reduction was less in 1912 than in several previous years, it is looked on with satisfaction. The deaths from tuberculosis in 1912 numbered 2,250, an actual decrease of 103. At the present time about 7 per cent. of the deaths in Ontario are due to tuberculosis. More die between 20 and 30 than in any other period.

Declining Birth-Rate in Ontario.—In the report of the registrar-general for Ontario, the birth-rate is shown as 22.4 per 1,000 for the past fiscal year, the lowest since 1903 and two points below that of 1912. This is in the face of the fact that the marriages show an increase of 3,038 in the year. The responsibility rests with the cities and towns. The cities had a record of 22,929 marriages, but were only able to report 15,917 births. The rural municipalities reported 10,910 marriages and 32,028 births.

President Godlee in Toronto.—Sir Rickman John Godlee, president of the Royal College of Surgeons, England, had the honorary degree of doctor of laws conferred on him at a special convocation of the University of Toronto, November 5. In the evening Sir Rickman was a guest at the regular monthly dinner of the Æsculapian Club, at which the Hon. W. J. Hanna gave an address on prison reform. At the Academy of Medicine on the evening of the 4th, Sir Rickman delivered an address on foreign bodies in the air passages. At the same meeting C. Franklin Hoover, M.D., Cleveland, read a paper on the clinical study of respiration.

Conference on Pollution of Navigable Waters.—Called at the instance of the Hon. J. D. Hazen, minister of Marine and Fisheries, a conference was held at Ottawa October 29, to determine on cooperative legislation enactments in the various provinces of Canada toward preventing the pollution of all navigable water-supplies. As contingent to this end, the conference passed a strong resolution calling for the immediate establishment of a federal department of public health. This resolution was proposed by Dr. E. P. Lachapelle, Montreal, chairman of the Quebec Board of Health, and seconded by Dr. M. M. Seymour, Regina, commissioner of public health for Saskatchewan, and president of the Canadian Public Health Association. Speaking to this resolution, the Hon. Martin Burrell could not give any definite announcement as regards a proposed federal department in the immediate future, as, although the matter had been discussed several times by the government, there were certain difficulties to be cleared up before the government could act in the matter. The jurisdiction between the provinces and the Dominion had to be worked out before legislation could be passed. Dr. Charles A. Hodgetts, Ottawa, medical adviser to the Conservation Commission, advocated a federal act given into the hands of a central body to apply in conjunction with the provincial bodies.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Oct. 25, 1913.

Noguchi's Demonstration in London

At a special meeting of the Royal Society of Medicine, Dr. Hideyo Noguchi gave a demonstration on "The Application of Cultural Methods to the Study of Infectious Diseases of Unknown Etiology." Noguchi's announcement of his discovery of the *Spirochaeta pallida* in the brain of subjects with general paralysis was listened to with great interest. Some beautiful microscopic specimens and lantern-slides were exhibited showing the organism in the brain tissue. He had transmitted it from the brain of a general paralytic to a rabbit, and had also produced in the rabbit by intracerebral or subdural inoculation, lesions resembling general paralysis. Lantern-slides were shown indicating that the spirochetes multiplied by longitudinal fission. Noguchi also drew attention to his lutein reaction for syphilis, which he considered superior to the Wassermann. He had cultivated three groups of spirochetes, of which the first two invaded the tissues and the blood, respectively, while the third was non-pathogenic and lived on the surface of mucous membranes or moist lesions. For the cultivation of the first two groups a piece of fresh sterile animal tissue was necessary in the culture medium. For the tissue spirochetes absolute anaerobiosis was necessary, which could be secured by an apparatus which he had constructed. But anaerobiosis was detrimental to the blood spirochetes, as a small amount of oxygen was necessary. Noguchi also showed cultures of the virus of poliomyelitis and rabies. He described the granules which he had found in pure cultures of the virus of rabies and believed to be the causal agent.

The Care of the Feeble-Minded

At the ninth quinquennial festival of the Royal Albert Institution, which is responsible for the care of the feeble-minded of the seven northern counties, Sir James Crichton-Browne gave an address on the future care of the feeble-minded. The etiology of mental deficiency was still obscure. At present the belief in its hereditary nature was uppermost and hopes were entertained that by segregation it might be reduced and even extinguished. But there could be no doubt that feeble-mindedness was a recessive character and might skip a generation. They could not shut up a man because his father or grandfather was weak-minded. There were also other causes besides heredity. It would almost seem as if the highest intellectual development in parents might sometimes result in mental deficiency in offspring. It was unquestionably desirable that a certain type of imbecile men and women should be segregated, the men for life and the women until 50 years of age; but it was erroneous to suppose that they would for a long time to come make any serious impression on the number of the feeble-minded in the community or on the mental caliber of the people at large. Along with heredity they must have regard to other causes of mental defect. The prevention of a large amount of it might be secured by improved sanitation in its widest sense, by skilled midwifery, by the hygienic rearing of infants and children, by the abolition or diminution of those zymotic diseases, scarlet fever, measles, etc., which left so many children blemished for life, by the timely treatment of defects of the senses and of various bodily illnesses, especially those of a tuberculous nature, by expert and discriminating teaching in schools of all classes, and the avoidance of that artificial production of stupidity which now sometimes went on, and by increased temperance and morality generally.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 24, 1913.

Deaths of Distinguished Men

Surgery in France has suffered a great loss in the death of Dr. Lucas-Championnière, which occurred October 22. He had been a member of the Académie des sciences for several months, and was present to read a paper on prehistoric trephination, which was on the program of the next meeting of the Institut de France, when he sank into his chair, overcome, probably by an embolism.

Born Aug. 15, 1843, at Saint-Léonard, Oise, Just Lucas-Championnière was intern in 1865, received his medical degree in 1870, and was appointed surgeon in 1874. He was chief of service at the hospitals of Cochin, Tenon, Saint-Louis and Beaujon, successively, and ended his hospital career as surgeon at the Hôtel-Dieu in 1906.

His chief interest had become focused on the method of antisepsis in 1868, when he was still an intern. In Scotland he met Lister, and became enthusiastic over a method which at that time was opposed or regarded with indifference. It was the glory of Lucas-Championnière to introduce antisepsis into France; he explained it and defended it against critics. He adhered to its principle in face of the progress in asepsis under Terrier and his successors. Antisepsis permitted Lucas-Championnière to undertake fearlessly a bolder surgery than that which had previously been practiced, and among his contributions to surgical progress were a perfecting of trephination, arthrotomy and the radical treatment of hernia. He also introduced the treatment of fractures by massage and early mobilization.

He was an active member of all the societies to which he belonged, and took a lively interest in free instruction. With other physicians and surgeons he founded in 1907 the Association d'enseignement médical des hôpitaux de Paris, and he gave clinical instruction to students. No one was worthier than he to occupy a chair at the Faculté de médicine, but though this distinction was denied him, his merit was none the less widely recognized. He had been a member of the Académie de médecine since 1894, and in 1912 was elected a member of the Académie des sciences, succeeding Lannelongue. He was editor of the *Journal de médecine et de chirurgie pratiques* and a member of the Association de la presse médicale francaise, and presided, at London, August 5, over the last meeting of the International Association of the Medical Press.

Dr. Ledouble, formerly professor of anatomy at the Ecole préparatoire de médecine de Tours, is dead from asphyxia by gas at the age of 65. Born in 1848 at Rocroy, Ardennes, he

was intern at Paris in 1873, surgeon at Tours in 1878, and took the chair of anatomy at the medical school in that town in 1888. He became a corresponding member of the Académie de médecine de Paris in 1898, and an associate member in 1907. Ledouble published some remarkable anatomic studies on the variations of the muscular and osseous systems, works on prehistoric medicine and surgery, on hairiness in man, and on Rabelais and Bossuet.

Dr. Louis-Frédéric Wickham, formerly chief of clinic of diseases of the skin at the Faculté de médecine de Paris, and physician of the Maison de Saint-Lazare, is dead at the age of 53. He was a pioneer in the use of radium therapeutically, especially in the treatment of cancer.

First Congress of French-Speaking Pediatricians

In accordance with the decision made last year the annual session of the Association française de pédiatrie has been changed to the Congrès des pédiatres de langue française in order to permit foreign French-speaking physicians to take part in it. The congress was held in Paris, October 3 and 4, under the presidency of *Agrégé* Professor Netter of Paris.

OBESITY IN CHILDHOOD

Dr. Le Gendre, physician of the hospitals of Paris, believes that the obesity of childhood is almost always caused by arthritism and neuro-arthritism. The greater majority of obese children belong to families in which several generations have over-eaten and are the victims of weakened digestive powers. The prognosis of obesity in children is less grave than among adults affected to the same degree, as far as the immediate outcome is concerned. The serious feature is that the moderately obese child runs a great chance of becoming a very obese adult. The general indications of treatment are theoretically the same in children as in adults. The particular difficulties in the case of the child arise in the graver difficulty in appealing to the will. Exercise should play the greatest part in the treatment. The hour that follows the meal should be devoted not to exercise but to complete rest. The duration of exercise should be calculated and the amount should be divided throughout the day. Bicycling is useful and may begin at 6 or 7 years, if not carried to excess. Skipping the rope, running with the knees bent and the chest up, and hoop-rolling are exercises good for pulmonary ventilation. No new methods of diet have been developed recently, but there is a reaction against too monotonous diets. As for physical agents, except hydrotherapy and massage, which necessarily play a part in every complete cure, the electrotherapeutic method of Professor Bergonié offers an advantage in certain cases in which active exercise is difficult. (THE JOURNAL, Oct. 9, 1909, p. 1201.)

Dr. Marcel Nathan of Paris read a paper on glandular obesity, studying successive thyroid and genital obesity, hypophyseal obesity, pineal gland obesity and adrenal obesity.

Dr. G. Mouriquand, *agrégé* at the Faculté de médecine de Lyon, read a paper on the study of the syndrome described by Fröhlich in 1901 and characterized by a tumor (adenoma, carcinoma, etc.) of the hypophysis, accompanied by a monstrous general obesity and atrophy or delayed development of the genital organs. Patients affected by this syndrome have a high tolerance to carbohydrates. Often they are children of diabetic and glycosuric parents, and their syndrome thus contrasts with that of their parents. Theoretically, it would seem that the syndrome, which is due to hypopituitarism, ought to be benefited by the use of extracts of hypophysis. The drawback to preparations of this gland is that the activity varies greatly in accordance with the variable content of the gland, in active principles and the methods employed for extraction. Practically the physician will do well to use powders which have been altered by neither heat nor chemicals. The child tolerates well the dried and pulverized gland. Mouriquand has given as much as 0.3 gm. to little girls of 10 years and 0.2 gm. to a child of 2 years without bad results. The best practice seems to be to associate thyroid medication with the use of the hypophysis, or to alternate the two. Genital opotherapy may help out in case of failure. There have been some successes with radiotherapy.

Dr. Apert, physician of the hospitals of Paris, while recognizing that dietary restriction is useful, emphasizes the fact that it is not nearly so well borne by obese as by normal subjects, and this not only subjectively but objectively (lipothymia, weakness, etc.). He considers it an error to calculate the ratio of an obese patient on the scale of that of normal men. It is necessary to restrict diet progressively and without excess.

Dr. Guinon, physician of the Bretonneau Hospital, emphasizes the rôle of race and heredity in the etiology of obesity. The obese are abnormal not only in respect to their excessive fat, but because they are almost always unstable, emotional and restless. They often have osseous dystrophies (genu valgum, flatfoot, scoliosis). Guinon has employed thyroid and hypophysis treatment, but at present he dispenses with them and obtains about the same results.

Dr. Léopold-Lévi of Paris observed that the thyroid gland in therapeutic doses (0.2 gm. of dry powder, for example) has little effect on obesity. It increases the appetite and may thus fatten thin persons. Hypophysis treatment sometimes gives results, but it is on diet and physical exercise that one must rely.

According to Dr. Hallé, physician of the hospitals of Paris, there are cases of obesity in childhood in which the diet must not be too much restricted and in which there is danger in thyroid treatment. These are in lymphatic patients affected with adenitis and osseous lesions.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 17, 1913.

Personal

October 16, the noted gynecologist of Marburg, Professor Ahlfeld, celebrated his seventieth birthday.

Privat-dozent Dr. Lange of Greifswald has been selected as successor of Professor Bürkner in the directorship of the polyclinic for ear diseases in Göttingen.

Professor Gaffky has received the distinction of the title Wirkl. Geheimer Obermedizinalrat on his retirement from the Institute for Infectious Diseases, and has been appointed an honorary member of the Institute.

Restriction of Foreigners in German Universities

As a result of the overcrowding by foreign students, especially Russian, the Prussian Department of Education has determined that from now on a maximum figure shall be established which the students of any foreign nation shall not exceed. The Baden Department of Instruction has, in view of a threatened overfilling of the auditorium and laboratories, prescribed as the privilege of the native students that foreigners shall not be admitted to registration for lectures, and for the assignment for places for the winter semester previous to November 5, and for the summer semester May 5, and then only to the extent that places are available at these assigned dates.

Annual Meeting of the German Society of Urology

Two topics were presented by the executive committee for discussion, in addition to the numerous addresses made to the fourth annual congress which was held in the latter part of September.

SEROLOGY AND VACCINE THERAPY IN UROLOGY

This subject was introduced by Professor v. Wassermann. He noted the peculiar position of the uropoietic system in its biologic relation. In his view the tolerance of the tissues for infection is very closely connected with a local immunity. Moreover, he showed that there is in a therapeutic sense an extremely important distinction to be made between two different infectious conditions which bacteria may excite in the urinary apparatus, according as the infection is superficial or has penetrated deeply into the tissues. He showed from the success and failure of treatment of the coli and gonococcus infections of the urinary tract that only the deep infections furnish a satisfactory field for vaccine therapy.

George Michaelis, a coworker with Wassermann, presented the serologic principles of vaccine therapy as they were founded on Wright's discovery of opsonins and that of tropins by Denys and Neufeld. Finally he gave a short summary of bacterial infections of the urinary tract in which he made plain the necessity of the preparation of autogenous vaccines.

Volk of Vienna said that the favorable results reported by American observers from the employment of gonococcus serum needed confirmation. The vaccine treatment, which, with exact dosage and careful observation, is not injurious in any case, is suited not only to the treatment of various gonococcic complications, but also to the various infectious diseases of the urinary organs, particularly as a remedy auxiliary to the methods previously used. Acute gonorrheal urethritis is not influenced. The determination of the opsonic index is superfluous so far as treatment is concerned. More attention must

be paid in the future to diagnostic vaccinations, and especially the combination of vaccine therapy with other methods and particularly with chemotherapy, must receive further development.

C. Schneider of Brückenau-Wiesbaden said that the entirely safe vaccination treatment of infectious processes of the urinary system means a marked advance over the previous methods of treating these diseases, and should be applied in all acute and chronic cases. Vaccine treatment should, if possible, be combined with local treatment, which is necessitated by the pathologic changes induced by the infection.

Asch of Strassburg stated that antigonococcus serum had failed in the treatment of gonorrhea, and that antimeningococcus serum was more satisfactory in gonorrheal arthritis with serous effusion. Vaccine treatment is successful in gonorrheal arthritis with a few exceptions. In funiculitis, periurethral infiltrates and acute septic gonorrheal processes, it often exercises a good influence, but not in prostatitis. In place of subcutaneous injections, which readily cause inflammation, Asch recommends the intramuscular injection of vaccines. The rise of temperature which follows such injections is of no value for diagnosis, as even healthy people may react with high fever. Gonococci are found in the urethral secretion after the injection when they were not previously demonstrable. For the diagnosis of late gonorrhea urethroscopy before and after the injection is recommended. From one to three days after such injections, striking lesions are to be found in the urinary tract which formerly appeared healthy. By this method gonococcus carriers can be converted into gonorrheics.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Oct. 15, 1913.

The International Congress on First Aid

In September, Vienna was the congress city of Europe for, apart from several less important conventions and meetings, two large gatherings of a scientific nature took place here — the convention of the German Natural Scientists and Practitioners (Deutscher Naturforscher und Aerztetag) and the Congress on First Aid and Ambulance (Congress für erste Hilfe und Rettungswesen). The latter being of more importance for the profession, it will be reported first. In order to systematize the proceedings, ten sections were formed, on first aid in accidents, first aid in towns and in the country, instruction of non-medical men in first aid, first aid in fire, in the mining and allied industries, in traveling, on the seashore and in navigation, and first aid in sport, in mountaineering, and in prevention of accident. More than two hundred papers were read, and over twelve hundred members were present.

Dr. Kuhn of Berlin read a paper on "Resuscitation of Persons Apparently Dead from Asphyxia." He postulates that artificial respiration and stimulation of the heart should be applied more frequently than it has been the custom hitherto. Experimental researches have shown that it is possible to obtain successful results in cases of poisoning with carbon dioxid or monoxid, or in drowning, lightning-stroke and electric shock. Especially the last-named two gave good prospects, even after hours, as proved by Hering. This man had succeeded in making human hearts beat eleven hours after he had removed them from the necropsy table. Similar observations were made by Kuliabko in hearts removed from children's bodies and in general anesthesia.

"First Aid in Alcohol Intoxication" was the subject of a paper by Mr. Windt. He pointed out that hitherto little had been done in this respect, as in the majority of cases persons found drunk in the streets were taken care of at the police station. These persons were patients, and should have the benefit of medical aid, as in over 50 per cent. there was complete loss of consciousness.

Sponge-fishing and its dangers were discussed by Dr. Flegel, who stated that over a hundred thousand souls directly found their living by this dangerous occupation. The old methods as used two thousand years ago were the safest: the trident, the search-rope or diving without any apparatus. These methods necessitated naturally that the work be done in shallow water with comparative safety. The adoption of modern methods (diving apparatus) enabled the men to work in greater depths, with the consequence of numerous fatalities, owing to derangements of the apparatus, and the rapid change of pressure of the surrounding medium (caisson disease). Except Austria-Hungary and Egypt, where the sponge-fishers are protected from these dangerous methods by the government, all other sponge countries (Greece, Turkey, India) had not yet found their way to do away with the dangerous system by law.

"First Aid and Prevention of Loss of Life in Navigation" was the title of a paper by Professor Hamm. Water-tight compartments arranged in the long axis as well as in the transverse diameter of a vessel were necessary, of course, with due regard to the stability. An important item was the relation of life-boats to the number of souls on board, not to the tonnage of the vessel. The water-tight compartments should not be considered at all in fixing the capacity of these boats. Careful consideration of the distribution of the cargo, the fuel and the storage of it, as well as the instalment of wireless telegraphy lessened the dangers on board a modern vessel. For every five hundred souls (or less) on board one doctor was necessary, and a ward besides a laboratory was advised for all ships taking long trips.

Aeronautics was discussed in several papers, of which one by Dr. von Schrötter dealt with the first-aid and prophylactic measures in high altitudes. He said that special precautions were needed in heights over 9,000 feet. The drop of temperature, of barometric pressure and of the oxygen content of the air were the chief dangers. An anointment of the skin exposed to the actinic rays of the daylight was necessary, and the eyes should be protected by preferably yellow-green — so-called "euphos"—glasses. Electric light, oxygen bulbs and life-belts (in flight over water) should be on board the air-vessel, as well as an emergency (first-aid) outfit. Great importance attaches to the perfect physiologic function of the heart, the ears and lungs. Loss of orientation might be caused by disturbance of the static organ, either by changes in the circulation or by the effects of the drop of barometric pressure. Another important point was the outlet of the motor from which the fumes could intoxicate the aeronauts, if carelessly adjusted. Smoking in hangars or in airships was absolutely dangerous. No person should approach an aeroplane (or balloon) about to descend. An apparatus for extinguishing fire should be at hand in all "air ports," as well as skilled medical help.

"First Dressing of Injuries" was the title of a paper by a member of the Vienna Ambulance Corps, Dr. Rosner. He emphasized the following rules: Fresh wounds should not be washed or probed; prolapsed organs should only be carefully supported (not replaced in the cavities of the body) and dressed with a simple dressing. Immobilization of fractures was a sine qua non in first aid. The first dressing should only enable the conveyance of the injured person to a hospital (or to his home). It should consist of a soft pliable, aseptic and absorbent substance. The first dressing was of paramount importance, especially on the battle-field. In all cases, however, reduction of luxations and fractures should be done as soon as possible, even on the scene of accident.

The sanitary precautions of the Austrian state railways were explained in a paper by Dr. Bagdan. Hospital cars and ambulance cars are running now on these lines, and a corps of male and female attendants is at the disposal of each district head office. First-aid boxes are carried in each express train, and for case of war or epidemics or large disasters usual freight-cars can be speedily converted into hospital-cars. A large, quite modern formaldehyd disinfection institute capable of holding two complete railway cars in the receiver is in service now. The cars will be disinfected in batches, and this method is said to be very cheap.

In connection with this congress, of which only the most interesting papers have been mentioned, there was an exhibition of appliances related to first aid: fire-outfits, smoke-proof outfits for firemen, modern instruments, statistics of accidents in factories, exhausters for dust-producing occupations and similar objects commanded the interest of those who had time to visit them. The majority of the members preferred to stay at the transactions and to help to organize an "International First Aid Committee," which will find means, after the model of the Red Cross, to render help in large disasters in a rapid and extensive way. This was the most important outcome of the congress.

BUDAPEST LETTER

(From Our Occasional Correspondent)

BUDAPEST, Oct. 9, 1913.

How to Attain Old Age

Dr. Lorand Dezsö, in an address given before the Hygienic Society, said that the chances of attaining old age are much greater if we live much of our life in fresh country air. Statistics go to show, he said, for Budapest, Vienna and Berlin at least, that the fourth generation of the town dweller is unknown; but enough is currently reported to make the con-

clusion inevitable that the sine qua non of longevity is a certain amount of time spent in the country. The city child is subject to a number of disturbing conditions other than mere absence of creature comforts, which undermine the constitution by throwing too heavy a burden on the sense organs, through which exhaustion of the central nervous system follows; among these conditions are noises, a perpetual round of hurry, and unending sequences of incidents exhausting the attention, to which are superadded the physical discomforts of vitiated air and effluvia from human beings and waste organic products, besides offensive gases and infection-laden dust. To attain old age we have to relieve ourselves from worry, strains and anxieties, withdraw periodically from the whirl of effortful existence, modify our diet, omit the use of stimulants and narcotics, and spend reasonably long periods of time under pleasant conditions in practical retirement. Above all, amusements should be simplified and accepted rather than sought after. Only vegetable and semi-animal foods should be eaten.

Check on the Development of Mental Degeneracy

There are about fifty thousand persons of unsound mind in Hungary at the present day. Dr. Décsi has drawn attention to this fact in the medical society, adding the fact that more than one-third of this insanity is caused by syphilis and drink. He suggests the following rules for checking the development of mental degeneration at the present day: 1. Prevention of those who have been insane once from marrying. It may be stated as a certainty that many women who have had one attack of lunacy would have remained free from a second attack had they not married. 2. Immediate legislation for compulsory confinement of habitual drunkards, who are the greatest propagators of lunatics and degenerates, and who should therefore be legally restrained from inflicting their own vice on other human beings. 3. Prohibition of marriage by habitual drunkards. 4. Care in the administration of alcohol to women, as this very often makes the offspring a drunkard or a lunatic. 5. General reformation of the marriage system, with certain health requirements. 6. Prohibition of marriage when hereditary insanity exists on both sides. 7. Prohibition of marriage by paralytics, epileptics, consumptives and those affected with cancer. 8. Restriction of the liquor trade. 9. The establishment of intermediate houses, so to speak, where those suffering from acute, but curable, insanity, could be placed instead of being incarcerated in lunatic asylums. 10. Removal of all children born of nervous or neurotic parents from the influence of the parents, and from all home associations as soon as possible.

Marriages

EARL WARREN PRESLEY, M.D., New York City, to Miss S. Lois Exton of Arlington, N. J., at Poughkeepsie, N. Y., October 7.

WALTER STUART WOODRUFF, M.D., Mount Vernon, N. Y., to Miss Jessie Thurber Hequembourg, of Dunkirk, N. Y., October 18.

THOMAS RUSSELL LITTLEJOHN, M.D., to Miss Mary Elizabeth Weeks, both of Pinewood, S. C., October 22.

ISAAC FLAVIUS LITTELL, M.D., to Miss Elizabeth Luckett Vance, both of Alexandria, La., November 3.

ALLYN BERNARD MOISE, M.D., Shreveport, La., to Miss Edith Margaret Moore of New Orleans, October 22.

ROBERT M. LOWRIE, M.D., Braddock, Pa., to Miss Laura R. Essick of Jerseytown, Pa., October 14.

ARNOTT KELL DUNCAN, M.D., Aldrich, Ala., to Miss Annot Vaught, at New Orleans, October 11.

FREDERICK MORRIS FRANKFORT MEIXNER, Peoria, Ill., to Miss Lillian Payne of Chicago, October 18.

CHARLES O. BURGESS, M.D., Monmouth, Ill., to Miss Lura Harlin of South Bend, Ind., recently.

LAWRENCE TAYLOR PRICE, M.D., to Miss Louise Crutchfield, both of Richmond, Va., recently.

HYMAN R. WIENER, M.D., Harrisburg, Pa., to Miss Belle Fried of Baltimore, October 22.

EDMUND RUSSELL BRUSH, M.D., to Miss Ruth Evans, both of Zanesville, Ohio, October 15.

MARTHA A. MCCULLOUGH, to Nicholas Link, D.D.S., both of Dubuque, Ia., October 22.

Deaths

Hamilton Kelly Beatty, M.D. Jefferson Medical College, 1871; a veteran of the Civil War; superintendent of the bureau of health of Allegheny until the consolidation of that city with Pittsburgh; later deputy superintendent of the bureau of health, and superintendent of the bureau of sanitation of the Pittsburgh department of health; one of the original members of the staff of the Allegheny General Hospital; died at his home in Pittsburgh, October 6, from pneumonia, aged 65.

George John Kleinschmidt, M.D. College of Physicians and Surgeons, Chicago, 1906; formerly a Fellow of the American Medical Association; professor of anatomy in Marquette University, Milwaukee; for many years connected with the business management of newspapers in Milwaukee; died at his home in that city, October 12, aged 48.

John B. Grammer, M.D. Memphis (Tenn.) Hospital Medical College, 1894; a member of the Arkansas Medical Society, and formerly secretary-treasurer of the White-Cleburne County Medical Society; for more than twenty-five years a practitioner of White County; died at his home in Searcy, October 12, from angina pectoris, aged 51.

Byron B. Butler, M.D. Detroit College of Medicine, 1900, of Great Falls, Montana; surgeon for a construction camp of the Chicago, Milwaukee and St. Paul System between Great Falls and Lewistown; died in his camp office, September 27, from the effects of morphin, self-administered, it is believed, with suicidal intent, aged 34.

Armin Mueller, M.D. Wisconsin College of Physicians and Surgeons, Milwaukee, 1902; captain, Medical Corps, U. S. Army; a Fellow of the American Medical Association; died at Field Hospital No. 3, Texas City, Tex., October 14, from infection, following a compound fracture of the leg, aged 33.

William Arnold, M.D. Starling Medical College, Columbus, O., 1850; surgeon of the Thirty-Seventh Ohio Volunteer Infantry during the Civil War, thereafter a practitioner of Brownville, Neb., until 1884, and since that time a resident of Omaha; died at his home, October 3, aged 94.

Robert Devereaux, M.D. Jefferson Medical College, 1867; owner of the Cresson (Pa.) Water Company; president of the Cresson First National Bank; a member of the hospital corps of the army during the Civil War; died at his home, October 5, from disease of the liver, aged 68.

Charles Sinclair Elliott, M.D. Homeopathic Hospital College, Cleveland, 1886; professor of mental and nervous diseases and electrotherapeutics in Kansas City Hahnemann Medical College; neurologist to the Armour Home; died at his home in Kansas City, September 27, aged 50.

Frank W. Cartwright, M.D. University of the South, Sewanee, Tenn., 1903; demonstrator of practical anatomy in his alma mater; of New York City; a veteran of the Spanish-American War; died in the Reading (Pa.) Hospital, October 17, from acute nephritis, aged 36.

John D. Brundage, M.D. Yale University, New Haven, Conn., 1864; a member of the Medical Society of the State of New York; for twenty years a practitioner of West Hampton, L. I.; died at the home of his daughter in Goshen, Conn., October 21, aged 79.

George C. Butler, M.D McGill University, Montreal, 1865; of London, England; for thirty-seven years a practitioner of London, England, who arrived in Halifax, N. S., from England, July 17; died in that city July 19, from pneumonia, aged 61.

Harry Sumner Newlin, M.D. College of Physicians and Surgeons, Baltimore, 1883; a Fellow of the American Medical Association; surgeon to the McKeesport (Pa.) Hospital; died at his home in that city, October 19, from pneumonia, aged 54.

Per Emil Torgny Anderson, M.D. Rush Medical College, 1887; for many years a practitioner of Wahoo, Neb., but for the last two years a resident of his native city, Stockholm, Sweden; died in that city, September 19, aged 52.

Charles W. Baldwin, M.D. University of Nebraska, Lincoln, 1886; a pioneer practitioner of Douglas County, Nebraska; once a member of the state legislature; died at his home in Elkhorn, October 21, from pneumonia, aged 49.

Edward Terry Buck, M.D Long Island College Hospital, Brooklyn, 1888; formerly a practitioner of Brooklyn and Indianapolis; was found dead in bed in a hotel in Indianapolis, October 19, from heart disease, aged 48.

Henry Thompson Peirce, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the Medical Society of the State of New York; died at his home in New York City, September 27, aged 69.

Werner M. Bramigk, M.D. Fort Wayne (Ind.) College of Medicine, 1892; for many years a practitioner of Fort Wayne; died in his home in Detroit, Mich., September 27, from carcinoma of the throat, aged 53.

John Francis Marion Davis, M.D. Atlanta (Ga.) Medical College, 1860; of Choccolocco, Ala.; a Confederate veteran; died at the home of his daughter in Atlanta, September 27, from heart disease, aged 73.

Thomas J. Carpenter, M.D. University of Michigan, Ann Arbor, 1871; for many years an employee of the pension bureau, Washington, D. C.; died at his home in that city, September 17, aged 66.

Charles Albert Bemis, M.D. Jefferson Medical College, 1872; a member of the Massachusetts Medical Society; died at his home in West Medway, September 13, from cerebral hemorrhage, aged 70.

Frederick A. Hall (license, Kansas, 1901); a member of the Kansas Medical Society, and district surgeon for the Union Pacific System at Hoxie; died suddenly at his home, October 21, aged 60.

Sigmund Edward Bondy, M.D. Imperial Royal Karl-Ferdinand University, Prague, Bohemia, 1877; of Passaic, N. J.; died in Trenton, N. J., August 21, from pulmonary abscess, aged 54.

William Walton Black, M.D. Tulane University, New Orleans, 1871; for many years physician to the Fink and Poydras asylums; died at his home in New Orleans, September 19.

David Cowie (license, Florida); of New Smyrna; formerly a surgeon in the British Navy; died in the Shelter Sanatorium, New Smyrna, October 31, from senile debility, aged 82.

Olive Ophelia Nelson, M.D. Hahnemann Medical College, Chicago, 1900; a member of the Indiana State Medical Association; died at her home in Huntington, September 23, aged 53.

W. H. Denton (license, Tenn., 1910); of Reelfoot, Tenn.; a member of the Tennessee State Medical Association; was shot and instantly killed at Cherry, Tenn., October 12, aged 33.

Jeremiah Frazier Dively, M.D. Bellevue Hospital Medical College, 1876; of Pittston, Pa.; died at the home of his son in West Pittston, October 5, from cerebral hemorrhage.

Erastus Manford Drollinger, M.D. Eclectic Medical Institute, Cincinnati, 1878; died at his home in South Bend, Ind., October 2, from disease of the stomach, aged 60.

Robert W. Campbell, M.D. Washington University, St. Louis, 1873; for forty years a practitioner of Bowling Green, Mo.; died at his home, October 7, aged 68.

Washington B. Cousins, M.D. Western Reserve University, Hudson, Ohio, 1862; of Ashland, Ohio; died in the Samaritan Hospital in that city, October 12, aged 74.

William Benson Clowe, M.D. Hahnemann Medical College, Philadelphia, 1883; died at his home in Walla Walla, Wash., September 30, from nephritis, aged 67.

John Boston Britt, M.D. Jefferson Medical College, 1889; of Princeton, S. C.; died about October 18, and was buried at McCormick, S. C., October 20, aged 47.

Lewis Blanchard, M.D. University of Buffalo, N. Y., 1866; one of the oldest practitioners of Delaware County, Ia.; died at his home in Edgewood, August 5.

Charles A. Ayers, M.D. Hahnemann Medical College, Philadelphia, 1888; died at his home in Philadelphia, October 9, from cerebral hemorrhage, aged 61.

Madison James Conant, M.D. University of Michigan, Ann Arbor, 1888; died at his home in Tawas City, Mich., October 7, from bulbar paralysis, aged 54.

Rufus Childs, M.D. Meharry Medical College, Nashville, Tenn.; died at his home in Houston, Tex., about September 24, aged 45.

Alexander J. Erwin (license, Ohio, 1896); a practitioner since 1864; died at his home in Mansfield, October 9, aged 73.

Abram Orrinzer Allen, M.D. Rush Medical College, 1886; died at his home in Mountain Lake, Minn., October 19, aged 57.

John A. Bush, M.D. Louisville (Ky.) Medical College, 1890; died at his home in Greenville, Tex., October 23, aged 46.

Everett L. Day, M.D. Barnes Medical College, St. Louis, 1906; died at his home in St. Louis, August 29, aged 35.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE MEDICAL TIMES ADVERTISEMENTS

A Discussion of Some "Oversights" and the Ethics of Journalism

Two or three weeks ago we published letters from two physicians calling attention to an advertisement of a "cancer cure" hospital appearing in the *Medical Times*. As a result of THE JOURNAL'S comments, some of the physicians who were listed as "contributing editors" of the *Medical Times* wrote that they had requested that their names be withdrawn from this list. In reply to at least some of these letters, the editor of the *Medical Times* wrote asking them to reconsider their decision and offering as an excuse the statement that the appearance of the "cancer cure" hospital advertisement was an oversight. In this connection the following letter from the *Medical Times*, addressed to THE JOURNAL of the American Medical Association, is pertinent:

"*Gentlemen*:—We note in your issue of October 18 an article calling attention to an advertisement which appears in the columns of this journal, and to which your editor rightly objects.

"The advertisement in the *Times* was the result of an oversight, and it will not reappear.

"While we are indebted to you for thus bringing the matter to our attention, we cannot but feel that a letter written to us would have been more in keeping with the ethics of journalism.

"Very truly yours, THE MEDICAL TIMES."

It will be noticed that this letter, like the letters sent to other physicians, ignores altogether the most important point made by THE JOURNAL in its criticism of that publication's advertising policy. THE JOURNAL said in this connection:

"If our correspondents will go through the advertising columns of the *Medical Times* they will find many, many other frauds, less cruel perhaps than the Kellam advertisement, but no less disreputable or discreditable to the medical profession."

The *Medical Times* apologizes for the advertisement of the Kellam Cancer Cure Hospital but ignores altogether the fact that the hospital advertisement was but one of many equally discreditable. We turn to recent issues of the *Medical Times* and we find it fairly reeking with advertisements of proprietary preparations that are a disgrace to the medical profession, many of them having been repeatedly exposed in THE JOURNAL. We find, for instance, a quarter-page advertisement of the Expurgo Manufacturing Company. "Expurgo Anti-Diabetes," we are solemnly told in the pages of the *Medical Times*, is:

"The only reliable and thoroughly tested remedy for the cure of Diabetes Mellitus and Insipidus."

This wretched fraud, which also is advertised in true "patent medicine" style direct to the public, is presented to a presumably intelligent profession as a "cure" for a disease which so far has baffled the best brains in the scientific world.

"Expurgo Lapis" we are told, also via the *Medical Times*, is:

"The only known cure for gall-stones, kidney and bladder stones, gravel and all kidney trouble arising from uric-acid origin.'

Did Kilmer's Swamp-Root ever claim more? "Diabetes is no longer an incurable disease" runs the advertisement of the Jireh Diabetic Food Company, yet the editor of the *Medical Times* must know that in THE JOURNAL[1] and in the reports of state chemists the Jireh diabetic foods have been shown time and again to be among the most dangerous and fraudulently exploited products sold to the unfortunate diabetic.

Phenalgin,[2] twin brother to the Antikamnia fraud, shouts its inferential falsehoods in a half-page display. Micajah's

1. THE JOURNAL A. M. A., Dec. 14, 1912, March 22, 1913, and April 5, 1913.
2. Propaganda for Reform, Ed. 8, pp. 10 and 267.

Wafers,[3] the alum-borax mixture long advertised as a cure for gonorrhea, endometritis, etc., may also be found, as well as many other preparations exposed at various times by THE JOURNAL. For example: Anasarcin[4], Campho-Phenique,[5] Papine,[6] Bromidia,[7] Cactina Pillets,[8] Pluto Water,[9] Prunoids,[10] Sanatogen[11] and Sal Hepatica.[12]

What excuse can the *Medical Times* offer for the presence of these frauds in its pages? Are these, too, "the result of an oversight"? Presumably for thus bringing to its attention these various other disreputable advertisements, THE JOURNAL will be accused again of violating "the ethics of journalism." If calling attention to fraudulent advertisements is out of keeping with the ethics of journalism, what, pray, must be said of the publications that are willing to share in the profits of such fraudulent exploitation? But, and we cannot repeat it too often, the *Medical Times* is but one of a class, neither worse nor better than many other medical journals whose financial support comes from the proprietary interests rather than from the medical profession. The responsibility for the existence of these journals really rests not on the business men who conduct them on a commercial basis, but on the physicians who tolerate or encourage them in any way.

"A CONTRAST IN MEDICAL PUBLICATIONS"

Under this title *The Journal of the Oklahoma State Medical Association*, in its October issue, comments pertinently, thus:

"Last month we had the pleasure of calling attention to the high class of *The Journal of the Southern Medical Association* and its advertising pages.

"We regret to have to note a contrast on analyzing a journal familiar to many Oklahoma readers. The *Medical Herald*, the official organ of the Medical Association of the Southwest, has long been an object of comment for its laxness in the acceptance of questionable advertising. That this laxness will eventually build up a defense for inferior products and render the physician users of them callous along ethical lines is evident from the tenor of editorials in this publication.

"The August issue of the journal contains a criticism of the Carnegie Foundation and the American Medical Association in their efforts to improve the condition of our medical colleges.

"The writer of this editorial, Dr. T. D. Crothers of Hartford, Conn., a contributing editor, bemoans the fact that the medical colleges of the United States have been reduced to 117; that it is proposed to make a reduction of twenty-five more. Dr. Crothers objects to reports of inefficiency of the medical institutions, but suggests no remedy.

"In the September issue of his journal he objects to the method of publication of papers in THE JOURNAL of the American Medical Association, and intimates that there is a trust or combination for the purpose of limiting the output of that journal to those who are popular with the section officers.

"It is a notorious fact that preachers often overlook their greatest field of activity in their own immediate circle. That reformers overlook in their own neighborhood a fertile field for work, and in this connection we have only to call attention of this able man to his own medical publication, and, incidentally, we desire also to call the attention of the Oklahoma readers to the advertising columns of this journal and have to suggest that they use their influence to reform its advertising pages.

"The August issue contains the advertisements of sixty-four drugs or compounds; of the sixty-four, fifty-five have either not been accepted by the Council on Pharmacy and Chemistry of the American Medical Association, have been thoroughly tested and failed, or found wanting in various degrees.

"Among the oldest offenders, we find Anascarin, Cactina Pillets, Hayden's Viburnum Compound, Triacol, Farwell and Rhines Gluten Flour, Pepto-Mangan (Gude), Nephritin, Sinkina and many others.

"Dr. Crothers is an alienist and neurologist, we understand, of some note. We wonder how much 'Neurilla,' manufactured by the Dad Chemical Company of New York, he uses in his practice? How much 'Neurosine' he orders dosed out in his Hartford hospital? An inspection of the advertising pages of this journal with which he is connected will convince anyone that it is a most notorious offender against ethics in carrying these advertisements to the medical profession existing to-day in this country. We note advertisements of compounds that were guilty of various shortcomings more than ten years ago, and that have not improved in that time. A great many of the fifty-five undesirable compounds have been criticized either by direct report of the Council or editorially in THE JOURNAL of the American Medical Association more than once. Most of them are known to be rank frauds, others claimers of virtues that never existed, the remainder just indifferent products.

"Just as long as the unthinking physician supports these medical publications by subscribing for them, or using the products advertised in them, he will continue to do himself an injustice, and ofttimes a severe one. We prayerfully commend the advertising pages of the *Medical Herald* to Dr. Crothers and suggest that there his explosive activity will find something worth working on."

THE FRIEDMANN "CURE"

Two Letters — Take Your Choice

EISNER-MENDELSON CO.
90 WEST ST. NEW YORK

October 31, 1913.

To the Editor:—An item appears in your issue of October 25, wherein it is stated that the Eisner-Mendelson Company was reported to have bought the rights for the Friedmann vaccine. This impression is entirely erroneous, and it was stated by us publicly at the time that the Eisner-Mendelson Company has no interest in this matter at all. We will thank you to kindly correct this item.

Yours very truly,
EISNER-MENDELSON CO.
per William J. Eisner.

A. E. BUTLER & CO.
Members Chicago Stock Exchange, Stocks and Bonds
116 SOUTH LA SALLE STREET, CHICAGO, U. S. A.

Dr. ————, May 15, 1913.
R————, Illinois.

Dear Sir:—We would like to call your attention to the Eisner-Mendelson Co. preferred stock, which for the past eight years has paid 8 per cent. on its par value ($10.00).

THIS COMPANY HAS LATELY ACQUIRED THE FRIEDMANN CURE FOR CONSUMPTION,[1] and where opinions differ as to the merits of this serum, it can in no way impair the present earning capacity of the company, but, on the contrary, may increase its earning power materially. The preferred stock in this company can be bought now at about $9 per share, netting approximately 8.09 per cent. on the investment. The principal stockholders are doctors and dentists.

We have a limited amount of this stock which we believe we can procure if you desire same, and if so, would suggest your sending Chicago exchange through your local bank to their Chicago correspondent, instructing them to turn money over to us on the delivery of the number of shares you ordered. Kindly advise us at the same time.

Awaiting the pleasure of hearing from you, we are

Yours very truly,
A. E. BUTLER & Co.

1. Capitals ours.—Editor THE JOURNAL.

3. Propaganda for Reform, Ed. 8, p. 138
4. Propaganda for Reform, Ed. 8, p. 10.
5. Propaganda for Reform, Ed. 8, p. 25.
6. Propaganda for Reform, Ed. 8, p. 262.
7. Nostrums and Quackery, Ed. 2, p. 589; Propaganda for Reform, Ed. 8, p. 182.
8. Propaganda for Reform, Ed. 8, p. 21.
9. THE JOURNAL, March 29, 1913, p. 1013.
10. Propaganda for Reform, Ed. 8, p. 276.
11. Nostrums and Quackery, Ed. 2, p. 470; Propaganda for Reform, Ed. 8, p. 293.
12. Nostrums and Quackery, Ed. 2, p. 639; Propaganda for Reform, Ed. 8, p. 292.

Correspondence

A Method of Securing Qualified Men

To the Editor:—A civil service examination for health director of the city of Oakland, Cal., was conducted under the auspices of the U. S. Public Health Service, with the permission of Surgeon-General Rupert Blue, in cities in which the service had stations. The examination was held on July 30 and 31, and was conducted by the civil service board of Oakland for all applicants residing in the state of California.

The board was fortunate in securing the aid of an advisory committee to assist it in preparing the questions and checking the examination papers. The committee consisted of Dr. E. N. Ewer, health officer of the city of Oakland; Dr. H. G. Thomas, Oakland; Dr. W. F. Snow, secretary of the California State Board of Health; Dr. W. A. Sawyer of the State Hygienic Laboratory, and Prof. C. G. Hyde of the University of California.

The civil service board received twenty-seven applications from physicians in various parts of the United States. The requirement that the health director must give his entire time to the city's business naturally limited the aspirants to men who are particularly interested in public health work. Nineteen men took the examination, of whom eleven passed.

Under the charter of the city of Oakland, the three men whose names are highest on the eligible list must be certified to the appointing power by the civil service board. The appointing power has the privilege of selecting any one of these men to fill the position.

Dr. Richard G. Brodrick of San Francisco passed highest on the list with a percentage of 94.3. Dr. Brodrick is the present health officer of the city and county of San Francisco, and has held this position for a number of years.

Dr. Norman E. Williamson of Lahontan, Nev., is second on the list with a percentage of 83.7. Dr. Williamson is in the United States Public Health Service and was for four years in charge of one of the health districts in the Panama Canal Zone.

Dr. Allen F. Gillihan of Berkeley, Cal., is third on the list with a percentage of 82.9. Dr. Gillihan is president of the Board of Health of the city of Berkeley and has devoted a large amount of time to the study of public health work.

FRANK COLBOURN, Oakland, Cal.,
Acting Secretary, Civil Service Board.

The following are the questions used in this examination:

WRITTEN EXAMINATION (TIME, FOUR HOURS)

1. Discuss diphtheria, bubonic plague, epidemic cerebrospinal meningitis, small-pox, measles and tuberculosis, under the following heads:
   (a) Methods of transference to human beings.
   (b) Periods of incubation.
   (c) Methods of defense against the disease.
   (d) Methods of control of its spread.

2. How would you investigate an outbreak of typhoid fever with a view to discovering its source? Devise an inspector's data blank for such an investigation. Outline instructions which should be issued to the public and to physicians.

3. How should a health officer proceed in making a survey to determine the prevalence of (*a*) malaria, (*b*) hookworm disease?

4. Outline, and give reasons for, a set of rules which you would consider reasonable for the control of (*a*) scarlet fever and (*b*) epidemic poliomyelitis, in the present state of our knowledge regarding these diseases.

5. Criticize the value of formaldehyd fumigation of dwelling-rooms after tuberculosis, diphtheria, yellow fever and measles.

6. What clinical and laboratory findings would you expect in a case of human bubonic plague, and how would you obtain your material for examination?

7. Discuss the relative responsibilities of city, county and state authorities for the supervision of a city milk-supply. Give details for the practical administrative control of the quality of such a milk-supply.

8. Of what benefit to the public health is an efficient meat- and market-inspection service?

9. Many cases of occupational diseases and industrial accidents occur annually in the United States. Name several of these diseases and common accidents and outline a constructive program for their prevention.

10. Outline the approved methods of disposal of the following classes of municipal refuse, severally and in groups: garbage, rubbish, street-sweepings, ashes, dead animals.

THESIS (TIME, FOUR HOURS)

Write an original discussion, not to exceed three thousand words, on the subject of "School Inspection."

The following information regarding Oakland is furnished in order that the candidate may acquaint himself with the more important facts.

The city of Oakland has fifty schools providing for the usual primary, grammar and high-school grades. Most of the buildings are less than 10 years old and several, including one high school, are under construction at the present time. The older buildings are of two and three stories, the newer ones have the rooms all on one floor and provide in part for open-air classes. Several are of the patio style of construction. The department employs the whole time of one physician, whose title is Superintendent of School Hygiene, and the whole time of seven trained nurses. The superintendent of school hygiene, besides attending to the usual duties of such an official, delivers lectures to the boys in the high schools on sex hygiene and kindred subjects. These subjects are taught to the girls by a woman physician who is also in the active practice of medicine.

EDUCATION AND EXPERIENCE

1. State your age, birthplace and present address.
2. What high-school and college education did you have before studying medicine? Give names of institutions, dates of attendance and degrees conferred. State fully.
3. Give a statement regarding the nature of your college work in (*a*) biology, (*b*) other subjects.
4. Give the name of the medical college which you attended, dates between which you were in continuous attendance, the degrees conferred and the dates when the degrees were received.
5. Give a statement regarding any special training in public health which you received in the medical school. State fully.
6. Describe your hospital experience (*a*) as intern or extern, (*b*) as visiting physician. Make special mention of your hospital training in communicable diseases. Name the hospitals and state their location. Answer fully.
7. What experience have you had in executive work?
8. What practical experience have you had in public-health work?
9. State any special experience, not already mentioned, which would be of value in the position for which you are applying. Mention any experience in teaching or research in medicine or public health.

PERSONAL QUALIFICATIONS (ORAL)

1. What use would you make of the laboratory in your administrative work as the health officer of a city?
2. Given a case suspected of being leprosy. With what diseases might the disease be confused? How would you reach a decision regarding the diagnosis?
3. Name the several preparatory methods of treating municipal sewage and the several methods by which raw or treated sewage may finally be disposed of.
4. What methods do you consider most effective in reducing the prevalence of venereal diseases?
5. What practical measures do you consider the health officer can institute to insure complete birth and morbidity returns?

Method of Sterilizing (?) Rubber Gloves

To the Editor:—A method of sterilizing (?) rubber gloves by means of 2 tablets (weight not given) of mercuric cyanid in 4 ounces of alcohol and 4 ounces of talc is recommended by Dr. Ray Ernest Smith in THE JOURNAL, Oct. 18, 1913, p. 1475. The solution is poured over the gloves, and they are removed and left to dry in a sterile towel. The time of application of the germicidal fluid is not given.

This method of sterilization is useless. Mercuric cyanid has been shown in my own experiments to have no action on most of the pus-forming organisms, particularly *Staphylococcus pyogenes aureus.* Harrington of Boston (*Boston Med. and Surg. Jour.*, Jan. 14, 1904) had a similar experience in obtaining no germicidal effect from mercuric cyanid after thirty minutes with a 1:500 solution, after which he desisted and considered the salt useless. Organic matter still further lowers the germicidal action. Dr. Smith's method is therefore useless. The alcohol may have a slight effect, about the same as the cyanid.

The way to sterilize rubber gloves is to boil them in water or glycerin or put them in the autoclave at a temperature of 120 C. (248 F.), with a pressure of 15 pounds for thirty minutes. Steam at 100 C. (212 F.) without pressure will not do it. They may be boiled and kept in glycerin conveniently.

The mercuric salts, bichlorid, iodid and cyanid, in the presence of organic matter, such as blood, pus, serum, soap or skin, are ineffective because they are neutralized and the insoluble albuminate is formed. Bichlorid is very strong under test-tube conditions; but, if organic matter is added, the salt retains no germicidal effect whatever. This has been repeatedly proved, as, for example, by Gebbert, who grew cultures after a fifteen-minute application of mercuric chlorid solution, 1:1,000, in the presence of albuminous fluid. Somerville and Walker (*Med. Press*, Feb. 14, 1906), also showed that, by the addition of organic matter, the germicidal value of mercuric chlorid dropped much below that of phenol (carbolic acid) in

equal strengths. Anthrax spores grew after fifteen-minute treatment with mercuric chlorid, 1:120.

Conditions of practice are such that disinfection by the mercuric salts must always be done in the presence of organic matter, soap, serum, blood, pus, skin or mucous membrane. All of these render the mercury salts ineffective and useless. How long will surgeons persist in the vain delusion that they can sterilize their hands with solutions of these salts? They are worse than useless in that they create a false sense of security and a belief in their germicidal value, which would be naive were it not pathetic and serious in its practical results. If there is any degree of uselessness, cyanid is the worst.

ELLICE MCDONALD, M.D., New York.

Mishaps Under Salvarsan

To the Editor:—Since the introduction of salvarsan three and one-half years have passed. During this period there have been reported in the literature about two hundred fatalities and the occurrence of blindness, deafness, hemorrhagic encephalitis, paralysis, epileptiform convulsions and severe intoxication following its use. As many physicians are not in the habit of writing for publication, and as others shrink from any publicity in regard to cases of syphilis in their private or contract practice, or for other reasons, many of the deaths and mishaps from the use of salvarsan have not been published. Therefore, I ask those physicians who have had any experience with deaths, blindness, paralysis, etc., or any of the other severe menacing disturbances following salvarsan, to send me brief clinical reports in order that I may compile comprehensive statistics. In making use of the material the names of the physicians supplying the information and their place of residence will not be mentioned. It is without doubt of the greatest importance that these hitherto ignored instances shall be collected, in order that there shall be placed in the literature such information that a decision can be made as to the actual harmlessness or the danger of salvarsan. Please address: W. H. DREUW, M.D., Potsdamerstrasse 31 a, Berlin, Germany.

[The foregoing is a translation of a German letter just received from Dr. Dreuw. He is a dermatologist, one of the collaborators on the *Dermatologische Wochenschrift*, published by Unna of Hamburg.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOXICITY OF THORIUM

To the Editor:—Will you please inform me whether or not thorium, the radio-active metal, is a poison? If it is a poison, what is its physiologic action? What is the maximum and minimum dosage? A. H. JAHN, M.D., Pittsburgh, Pa.

ANSWER.—Metallic thorium and its insoluble compounds, such as the oxalate and dioxid, are non-toxic. Some experiments have been made with them (oxalate) in the attempt to control vomiting, and (metal and dioxid) in roentgenographic work in the gastro-intestinal tract. In general the results were not markedly superior to those obtained with bismuth compounds. In the Roentgen-ray work 30 gm. of the metal have been administered daily without toxic effects. A pharmacologic study of thorium salts has been made by Chase and Gies and by Sollmann and Brown (*Am. Jour. Physiol.*, 1907, xviii, 426 and 457).

Aqueous solutions of thorium salts precipitate proteins and protoplasmic materials in general, blacken and precipitate blood, bleach and harden muscle and harden and shrivel practically all tissues. They have no appreciable effect on the unbroken skin. Thorium nitrate has the properties of an astringent irritant. Its irritant effects can be avoided by dissolving it in a solution of sodium citrate. Its toxicity is very low. At one time thorium nitrate was described in New and Nonofficial Remedies as a non-proprietary article. The following statement in regard to its action and usage was given:

"The soluble thorium salts bear a close resemblance to alum in their local astringent and irritant properties. They are not absorbed from the alimentary canal. Hypodermically they cause local sloughing, and intravenously they kill by coagulating the blood. The non-precipitant double salts are practically non-toxic, even intravenously. They are excreted by the kidneys. Thorium salts are fairly radio-active. They have been recommended for local application in malignant diseases and thorium emanation has been inhaled in phthisis. Reliable evidence as to the therapeutic value of thorium salts is lacking."

The eligibility of thorium nitrate having been questioned, the committee which looked into the matter reported that the substance appeared to be little used and that its retention in New and Nonofficial Remedies was not justified. Accordingly the description of the product does not appear in New and Nonofficial Remedies, 1913.

RELIEF OF HEADACHE AFTER POISONING BY ILLUMINATING-GAS

To the Editor:—What are the quickest and most efficient remedies to relieve the intense headaches as a consequence of illuminating-gas poisoning? Kindly give the names of the drugs, in their relative order of efficiency, the doses and frequency of administration, and also state which one has been found the most reliable. I should also be glad to have a detailed account of treatment and any other available data.

R. H. KILDUFFE, M.D., Philadelphia.

ANSWER.—Articles on the treatment of gas poisoning make little reference to headache. We have been able to find only the following:

Peterson and Haines ("Legal Medicine and Toxicology," ii, 655) state that the inhalation of oxygen prevents the headache subsequent to poisoning.

Robin (*Gaz. méd. belge*, 1909, xxii, 79, abstr., THE JOURNAL, Dec. 18, 1909, p. 2116) warns against using the ordinary remedies for headache which may impair the blood and says that morphin should be the main reliance. Caffein and strychnin should be used if tonics seem to be indicated.

The following references to the treatment of illuminating-gas poisoning may be consulted:

McConnell, J. W., and Spiller, William G.: A Clinicopathologic Study of Carbon Monoxid Poisoning, THE JOURNAL, Dec. 14, 1912, p. 2122.
O'Malley, Mary: Carbon Monoxid Poisoning with Acute Symptoms, Relapse with Psychotic Symptoms, and Complete Recovery, THE JOURNAL, Oct. 26, 1912, p. 1540.
Courmont, J.; Morel, and Mouriquand, G.: Chronic Carbon Monoxid Intoxication, *Bull. de l'Acad. de méd.*, Dec. 20, 1911; abstr., THE JOURNAL, Feb. 4, 1911, p. 384.
Dana, H. W.: Gas Poisoning, *Boston Med. and Surg. Jour.*, May 27, 1909; abstr., THE JOURNAL, July 10, 1909, p. 118.
Jones, G. J.: Illuminating-Gas Poisoning, *Am. Jour. Med. Sc.*, January, 1909; abstr., THE JOURNAL, Feb. 6, 1909, p. 473.
Handbook of Therapy, p. 114.

SODIUM FLUORID IN ABDERHALDEN'S SERODIAGNOSIS FOR CANCER

To the Editor:—I note with much interest your editorial on "Abderhalden's Test in Cancer" (THE JOURNAL, Oct. 18, 1913, p. 1461). I should appreciate reference to articles giving the sodium fluorid technic. I have used the regular Abderhalden technic, with plain distilled water and cancer tissue in a dozen or more cases, with favorable results, but am not acquainted with the technic to which you refer.

CLARENCE F. BALL, M.D., Rutland, Vt.

ANSWER.—Erpicum (*Bull. de l'Acad. roy. de méd. de Belg.*, 1913, xxvii, 624), used the following method: The serum from the suspected cancer patient is obtained in the usual way with the usual aseptic precautions. The fragments of cancer tissue (1 cm. in diameter) are boiled in about twenty times their volume of water for ten minutes; a sample of this water is now tested for the biuret reaction, and if a positive result is obtained the fragments of tissue are bathed in distilled water with 3.5 per cent. sodium fluorid until the liquid no longer gives the biuret reaction. A bit of tissue is now placed in the dialyzer, 2 c.c. of serum are added, and the dialyzer introduced into a suitable bottle or vessel containing a 1.5 or 2 per cent. sodium fluorid solution and the whole is kept at 22 C. (71.6 F.) for thirty-six hours. A control dialyzer without the cancer tissue is prepared in the same way. Whether or not any new substances—peptones, etc.—have appeared in the fluid outside the dialyzer is determined by the biuret reaction and other methods. Erpicum used the

biuret reaction. He obtained the biuret reaction only once with the water in which he boiled the cancer tissue preliminary to dialysis, and once as the result of contamination with the serum in the control dialyzer. Sodium fluorid is used in such experiments as these because in the concentrations mentioned it is germicidal without affecting enzymatic processes.

THE ITALIAN PHYSICO-CHEMICAL ACADEMY AND THE SOUTHERN CALIFORNIA PRACTITIONER

To the Editor:—1. I enclose a communication from the "Italian Physico-Chemical Academy" advising me of election to this "academy" as honorary member. Will you be good enough to inform me if anything is known of this academy, whether it is first-class and has any standing among European scientific societies, etc.? I do not intend to be "stung," nor do I want to pass a good thing.

2. Also, is the *Southern California Practitioner* of Los Angeles (Dr. George E. Malsbary, editor) all right? He is asking for an abstract of a recent paper of mine to be paid for in the form of five yearly subscriptions worth $10 sent to five persons I shall name. Sorry to trouble you, but both of these propositions sound "fishy."

HENRY W. BURNETT, M.D., Providence, R. I.

ANSWER.—1. Our correspondent's suspicions regarding both the "academy" and the medical journal are well founded. The propositions *are* "fishy." The Italian Physico-Chemical Academy is, as we have repeatedly stated, a fake institution whose chief purpose seems to be that of selling membership certificates to the gullible. The thing was written up in THE JOURNAL, Oct. 21, 1911, under the title "Bogus Scientific Institutions"; it was also referred to in the Berlin Letter of the same issue. Again our readers were warned in the issues of May 11, 1912, p. 1455, March 8, 1913, p. 770, and May 10, 1913, p. 1480.

2. The scheme that certain medical journals work for the purpose of obtaining a subscription list that will pass muster with the postal authorities by offering to pay for an abstract with a certain number of subscriptions was referred to in THE JOURNAL, Oct. 11, 1913, p. 1391, and Oct. 18, 1913, p. 1473.

TREATMENT OF PELLAGRA

To the Editor:—Is there any specific treatment for pellagra? If not, kindly tell me what has proved the most effectual.

R. W. WILEY, M.D., Salem, Va.

ANSWER.—Most authors agree that there is no specific treatment for pellagra, but some assert that the one drug which is most effectual is arsenic. Arsenic has been tried in various forms, including, in addition to the ordinary official preparations, atoxyl, sodium cacodylate and salvarsan. None of these appears to have produced such results that it can be regarded as a cure for the disease. Niles recommends arsenite of iron given by hypodermic injections and sodium cacodylate in doses of ¾ grain, injected on alternate days under careful aseptic precautions. Proper diet and proper hygienic conditions must be provided. Hydrotherapy is regarded as very useful by some, and others have recommended the transfusion of blood from those who have recovered from the disease. This method, however, has received only a limited application.

RUSSIAN MEDICAL JOURNALS

To the Editor:—Please name some Russian medical journals and places of publication.

M. WEINSTEIN, M.D., Rockaway Park, L. I.

ANSWER.—The following are among the leading Russian journals, with addresses of subscription offices:

Russky Vrach, Nevskii 14, St. Petersburg, Russia. Weekly; about $7 a year.

Meditsinskoe Obozrienie, Arbat Dom Obshestva Russkich Vratchi, Moscow, Russia. Semimonthly; about $5.25 a year plus postage.

Pediatria, 31 Nikolaevskaya, St. Petersburg, Russia. Monthly, about $3 a year plus postage.

STATES WITH WHICH PENNSYLVANIA RECIPROCATES

To the Editor:—Please tell me with what other states the Pennsylvania State Board reciprocates. SUBSCRIBER.

ANSWER.—Pennsylvania has established reciprocal relations, on the basis of an examination only, with Illinois, Indiana, Louisiana, Nevada, New Jersey and Ohio. The Bureau of Medical Education and Licensure of Pennsylvania is given authority in its discretion to accept certificates of license issued by other states in lieu of an examination when those states accord a like recognition of licenses issued in Pennsylvania.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, State Capitol Bldg., Little Rock, November 11-12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bank Bldg., Pine Bluff; Homeopathic, Little Rock, November 11. Sec., Dr. Ida J. Brooks, E. 10th St.; Eclectic, Little Rock, November 11. Sec., Dr. C. E. Laws, 712 Garrison Ave., Ft. Smith.

CONNECTICUT: Regular, City Hall, New Haven, November 11. Sec., Dr. Charles A. Tuttle; Homeopathic, New Haven, November 11. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, New Haven, November 11. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Jacksonville, November 12-13. Sec., Dr. J. D. Fernandez.

MAINE: City Hall, Portland, November 11-12. Sec., Dr. Frank W. Searle, 776 Congress St.

MASSACHUSETTS: Regular, State House, Boston, Nov. 11-13. Sec., Walter P. Bowers, Room 159, State House, Boston.

NEBRASKA: Lincoln, November 12-13. Sec., Dr. H. B. Cummins, Seward.

SOUTH CAROLINA: Columbia, November 11. Sec., Dr. A. Earle Booser, 1806 Hampton St.

TEXAS: Bender Hotel, Houston, November 11-13. Sec., Dr. W. L. Crosthwait, Suite 1003, Amicable Bldg., Waco.

WEST VIRGINIA: Hotel Chancellor, Parkersburg, November 10. Sec., Dr. S. L. Jepson, Wheeling.

Colleges Adopt Higher Requirements

The new announcement of the University of Arkansas, Medical Department, indicates that after Jan. 1, 1914, that school will require for admission one year of collegiate work, including courses in physics, chemistry, biology and German or French, in addition to a standard four-year high-school education. The Medical College of South Carolina also announces the adoption of the same requirement after the beginning of the year. This makes seventy-nine colleges which either already are enforcing the entrance requirement of one or two years of collegiate work, or which, according to their announcements, will do so after Jan. 1, 1914.

Illinois June Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at Chicago, June 17-19, 1913. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 285, of whom 258 passed and 27 failed. Two candidates withdrew and for five candidates the examination was incomplete. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
Bennett Medical College	(1913)	14
Chicago College of Med. and Surg.	(1913)	102
Chicago Medical College	(1890)	1
Hahnemann Medical College and Hosp., Chicago	(1913)	16
Hering Medical College	(1913)	3
Jenner Medical College	(1913)	6
Illinois Medical College	(1911)	1
Northwestern University	(1913)	34
Rush Medical College	(1911) (1912) (1913,19)	21
University of Illinois	(1913)	46
Johns Hopkins University	(1913)	1
Marion-Sims College of Medicine	(1896)	1
St. Louis University	(1913)	5
Washington University, St. Louis	(1910) (1913)	2
Columbia University, Coll. of P. and S., N. Y.	(1896)	1
University of Pennsylvania	(1887)	1
Meharry Medical College	(1913)	1
University of Tennessee	(1913)	1
Vanderbilt University	(1913)	1
FAILED		
University of Illinois	(1913)	2
Chicago College of Med. and Surgery	(1910) (1913, 11)	12
Hahnemann Med. Coll. and Hosp., Chicago	(1910) (1913)	2
Hering Medical College	(1913)	3
Illinois Medical College	(1910)	1
National Medical University, Chicago	(1910)	1
Northwestern University	(1913)	1
American Medical College, St. Louis	(1913)	1
College of Phys. and Surgs., St. Louis	(1899) (1910)	2
Meharry Medical College	(1904)	1
Royal University of Palermo	(1911)	1

Illinois April Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at

Chicago, April 29-May 1, 1913. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 181, of whom 154 passed and 27 failed. The following colleges were represented:

PASSED College	Year Grad.	Total No. Examined
University of Southern California	(1909)	1
Denver and Gross College of Medicine	(1907)	1
Bennett Medical College	(1911,2) (1912,4) (1913,12)	18
Chicago College of Medicine and Surgery	(1911) (1912,4) (1913,7)	12
Hahnemann Medical College and Hospital, Chicago	(1910) (1912,3)	4
Hering Medical College	(1912) (1913,3)	4
Northwestern University	(1909) (1912) (1913,9)	11
Rush Medical College	(1912,2) (1913,38)	40
University of Illinois	(1911) (1912,3) (1913,48)	52
University of Iowa, College of Medicine	(1912)	1
Harvard Medical School	(1900)	1
College of Phys. and Surgs., St. Louis	(1887)	1
St. Louis University	(1912)	1
Washington University, St. Louis	(1896) (1901)	2
Medical College of Ohio	(1903)	1
University of Pennsylvania	(1898)	1
Meharry Medical College	(1912)	2
Royal University of Munich	(1892)	1
FAILED		
Bennett Medical College	(1912)	3
Chicago College of Medicine and Surgery	(1911) (1912) (1913)	3
College of Medicine and Surgery, Chicago	(1909)	1
Hahnemann Medical College and Hosp., Chicago	(1912)	3
Jenner Medical College	(1911) (1912,2)	3
National Medical University, Chicago	(1903) (1906)	2
Reliance Medical College	(1911)	1
University of Illinois	(1912)	2
College of Phys. and Surgs., Keokuk	(1877)	1
Hospital College of Medicine, Louisville	(1904)	1
Barnes Medical College	(1905) (1906) (1910)	3
College of Phys. and Surgs., St. Louis	(1910)	1
Meharry Medical College	(1910) (1911)	2
University of Parma	(1901)	1

West Virginia April Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the oral, written and practical examination held at Huntington, April 14-16, 1913. The number of subjects examined in was 16; total number of questions asked, 170; percentage required to pass, 80. The total number of candidates examined was 16, of whom 10 passed and 6 failed. Twelve candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Bennett Medical College	(1913)	81*
Chicago College of Phys. and Surgs., Baltimore	(1912)	82, 87, 88
University of Maryland	(1911)	84
Maryland Medical College	(1904) 83; (1912)	86
Starling Medical College	(1898)	80
Lincoln Memorial University	(1912)	82
Medical College of Virginia	(1912)	86
FAILED		
Illinois Medical College	(1910)	79
University of Louisville	(1912)	71
College of Physicians and Surgeons, Baltimore	(1912)	77
Leonard Medical School	(1911)	75
Eclectic Medical College, Cincinnati	(1910)	73
Starling Medical College	(1890)	65

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
George Washington University	(1891)	Virginia
Hering Medical College, Chicago	(1903)	Tennessee
Chicago College of Medicine and Surgery	(1910)	Illinois
University of Louisville	(1911)	Kentucky
Hospital College of Medicine, Louisville	(1885)	Ohio
University of Maryland	(1881)	Maryland
Eclectic Medical College, Cincinnati	(1910)	Kentucky
Cleveland University of Medicine and Surgery	(1894)	Ohio
University of Pittsburgh	(1905)	Illinois
Tennessee Medical College	(1907)	Kentucky
University of Virginia	(1910)	Virginia
Medical College of Virginia	(1909)	Virginia

* Official information from the college says this man is not a graduate.

The following questions were asked:

ANATOMY AND EMBRYOLOGY

1. Describe in detail the scapula. 2. What bones enter into the formation of the wrist joint? 3. Give origin and insertion of the biceps and triceps muscles. 4. Give the origin and branches of the femoral artery. 5. Give origin, course and distribution of the vertebral arteries. 6. Describe the coverings of the brain. 7. Give the divisions of the spinal nerves and the number of each. 8. Name the anatomic divisions of the abdomen and describe the linea alba. 9. Describe the gall-bladder and name the bile ducts. 10. Describe the male urethra.

PHYSIOLOGY AND HISTOLOGY

1. Define a reflex action and name three reflexes of interest to the practitioner. 2. Give the general relations of the gray and white matter in the cord. How do we determine from what region any given section is taken? 3. Mention some important characteristics of the pulse in health and disease. 4. Give general description of the heart, defining its function. 5. Give the physiology of respiration. 6. Describe the pressure conditions in the lungs and thorax and their influence on the circulation. 7. Describe the digestion and absorption in the stomach. 8. What is urea and where found? 9. Give histological structure of the cornea. 10. Give the histology of the nasal mucous membrane.

BACTERIOLOGY AND HYGIENE

1. State the agencies by which the body protects itself against the entrance and bad effects of pathogenic bacteria. 2. State the products of bacteria. Give functions. 3. Define spirilla, bacilli. Illustrate. 4. Name the important pathogenic diplococci. 5. Name the most common sources of infection in diphtheria. 6. State the chief sources of contamination of drinking-water. 7. What precautions are necessary to insure healthy sleep? What gases accumulate in improperly ventilated sleeping-rooms? 8. How would you prepare an artificial food for a new-born infant? 9. Describe the effects of a cereal diet. 10. Give a proper diet in the case of diabetes mellitus.

CHEMISTRY AND MEDICAL JURISPRUDENCE

1. To what salts do most cathartic minerals owe their virtue? 2. What are proteids? Name one. 3. What pathologic conditions produce bile in urine? 4. Mention several tests for sugar. 5. Give chemical antidote for silver nitrate, mercury bichlorid, Tr. iodin. What is formed? 6. Define oxidation and where does it occur in the body? 7. How would you determine organic matter in water? 8. How do gunshot wounds differ from other wounds? 9. Give the distinguishing marks between ante-mortem and post-mortem wounds. 10. Differentiate between dementia and hysteria.

OBSTETRICS AND GYNECOLOGY

1. Give the dimensions of the female pelvis. 2. How would you treat a case of incomplete abortion? 3. Give the treatment of subinvolution of the uterus following labor. 4. Give the causes and treatment of puerperal septicemia. 5. Give some of the indications for version. How would you do it? 6. What is Credé's method of expelling the placenta? 7. Give the most common cause of pus tubes or pyosalpinx. 8. At what age does menstruation occur? Name some of the causes of delayed menstruation. 9. Name some of the causes of incontinence of urine in women. 10. Name the causes of dysmenorrhea and give treatment.

PRACTICE OF MEDICINE AND PEDIATRICS

1. In what cases would the ophthalmoscope aid in diagnosis? 2. Of what import is the spleen in the diagnosis of febrile conditions? Define splenic dulness. 3. Differentiate early pleurisy from intercostal neuralgia. 4. Make a diagnosis of aneurysm of the descending aorta. 5. Describe treatment of acute inflammatory articular rheumatism. 6. What diseases may cause occlusion of the common bile duct? 7. Differentiate the coma of opium poisoning from that of cerebral hemorrhage. 8. What treatment would you recommend for diphtheritic paralysis? 9. Give symptoms and treatment of whooping-cough. 10. Give symptoms, complications and treatment of mumps.

PRACTICE OF MEDICINE AND PEDIATRICS (ECLECTIC)

1. Give the etiology, diagnose and treat exophthalmic goiter. 2. Make diagnosis, outline treatment and general management of diabetes mellitus. 3. Discuss acute articular rheumatism, including common sequelae. Give treatment. 4. Diagnose and treat scarlet fever. 5. Give the symptoms, diagnose and treat erysipelas. 6. Define sciatica. Diagnose and treat. 7. Give the symptoms, diagnose and treat lobar pneumonia. 8. Diagnose and treat incipient pulmonary tuberculosis. 9. Define poliomyelitis. Diagnose and treat. 10. Define cerebrospinal meningitis. Diagnose and treat.

SPECIAL MEDICINE

1. Discuss heart murmurs. Differentiate organic and functional. 2. Define dyspnea. Discuss value as a diagnostic sign. 3. Diagnose and treat frontal sinus infection. 4. Diagnose and treat diphtheria of the nasal passages. 5. Diagnose and treat tuberculosis of the larynx. 6. Discuss aphonia. 7. Define diplopia, ptosis. Give etiology, diagnose and treat. 8. Define glaucoma. Diagnose and treat. 9. Give the etiology, diagnose and treat poliomyelitis. 10. Give the etiology, diagnose and treat chorea.

SURGERY

1. Classify tumors and give the theories concerning their origin. 2. Discuss the indications for drainage and describe two drains in common use. 3. Give the early symptoms of carcinoma of the stomach and describe in detail one of the laboratory tests which is helpful in the diagnosis of the same. 4. Describe ligation of the middle meningeal artery near its point of bifurcation, including the topography on the exterior of the skull. 5. State the ways in which a fracture of the olecranon process is produced and give its symptoms and treatment. 6. Give the symptoms of the most common dislocation of the hip joint and describe one method of treatment by manipulation. 7. Describe in detail an amputation of a finger at the metacarpophalangeal joint. 8. Discuss the etiology of peritonitis. 9. Give the symptoms, differential diagnosis and details of surgical treatment of strangulated femoral hernia. 10. Define Fowler's position, Trendelenburg's position, appendicectomy, choledochotomy, talipes equino-valgus, meningocele, aneurismal varix, pylephlebitis, ranula, hypospadias.

MATERIA MEDICA AND THERAPEUTICS

1. Convert liter, gram and c.c. into weights and measure ordinarily used in U. S. Army. 2. Write a prescription containing four remedial agents. 3. What is normal blood-pressure? Name two drugs that increase it. 4. Enteroclysis; hypodermoclysis; describe them. 5. Tr. nux vomica; give dose and per cent. of strychnia it contains. 6. Iodin; give therapy. 7. Air and sunshine; give

therapy. 8. Iron; give therapy. 9. Digestive ferments; name principal ones and give therapy. 10. Mineral acids; give therapy.

MATERIA MEDICA AND THERAPEUTICS (ECLECTIC)

1. Give properties, dose and specific indications for digitalis, belladonna and gelsemium. 2. What is the source of quinine? Give dose and therapy. 3. Give therapeutic indications and dose of arsenous acid. 4. What is oleoresin aspidium? Give dose and therapy. 5. Discuss the therapeutic value of diaphoresis. What drugs and measures are most effective? 6. Write a prescription useful in the treatment of acute cystitis. 7. Discuss therapeutic measures of value in the treatment of arteriosclerosis. 8. What remedies are useful in the treatment of angina pectoris? 9. What measures would you use for the relief of hyperpyrexia? 10. What is an antitoxin? Name two and give dose of each.

Book Notices

MIND AND HEALTH. With an Examination of Some Systems of Divine Healing. By Edward E. Weaver, Ph.D., with an Introduction by G. Stanley Hall, Ph.D., LL.D., President of Clark University. Cloth. Price, $2 net. Pp. 500. New York: The Macmillan Company, 1913.

The material contained in this volume was originally prepared for a thesis for the degree of Doctor of Philosophy at Clark University, but, according to the author, it has been greatly elaborated since that time. His own words best set forth the object of the book, "The study of the influence of mental states upon health has now entered upon the stage of exact investigation, by both psychology and medicine. This treatise is an attempt to embody some of the latest results of the psychologic study of this important subject and to lay down the fundamental psychological principles governing health and promoting healing. Inasmuch as there is a strong tendency on the part of religious bodies to make non-medical healing a part of their work, and because this is done without a thorough knowledge of psychology or medicine, there is urgent need for the examination of this professed healing."

The proposition which the writer has undertaken to demonstrate is that the treatment and cure of disease, or at least of a certain class of disease, is a proper function of religious organizations. Dr. G. Stanley Hall in the introduction says, "I see no reason why religion, which in past ages has always exerted such a profound influence on all matters of health and disease, cannot rehabilitate for itself from the material herein described its old function of healing, which, when it is complete, will have a profound significance on the future fate and function of the church."

With all possible sympathy for the author and his efforts, the impartial reader is forced to admit that the book falls short both of its possibilities and of the ambitions of the writer. It is apparent throughout that the writer, however conversant he may be with psychology, is not familiar with modern scientific medicine. This is shown in the quotation from the preface given above, in which is found the old and inaccurate distinction between medical and non-medical healing, the author apparently assuming that the field of modern medicine in the treatment of disease is limited to the use of drugs. The attitude of the author toward the instances of healing which he narrates is one of credulity rather than of scientific discrimination, while his apparent confidence in testimonials and *ex parte* statements shows a lack of appreciation of the relative value of evidence. It is also noteworthy that in citing authorities on psychotherapy he too often refers to the most demonstrative rather than to the most authoritative writers in this field. The reasoning in many cases is of the *post hoc, ergo propter hoc* variety, found in all sectarian literature. The cases referred to in the introduction are of the old familiar type. A woman is suddenly stricken with a mysterious malady. The physicians in the case "have given her up." The patient is said to be "entirely beyond the reach of medical science." These are the usual formulas for such cases. The healer or the minister or the aged father prays for her recovery. The woman recovers. Therefore, she was healed by prayer. It is hardly necessary to point out the many fallacies in this line of argument.

Mr. Weaver would have written a better book if he had confined his efforts to the history of the various mental-healing movements, on which subject he is clear, concise and interesting. But when he attempts to formulate general principles he gets into deep water. No one familiar with modern psychotherapy will agree with him that "the practical handling of psychotherapeutic principles runs precisely parallel to the terms of the gospel evangel, and to-day science is affording us the wondrous spectacle that in order to free ourselves of disease we must employ the same means that we have been led to employ in the past to become free from sin." The loose reasoning here is equaled only by its loose diction.

The principal "religious systems" considered are Christian Science, the Emmanuel movement, Dowieism, and metaphysical healing. If the author had gone more deeply into the history of medicine, and if he were familiar with the "miracles" which are a part of all religious and emotional movements, as well as such strange chapters in human experience as mesmerism, Perkins tractors, the earlier days of electricity, the belief in the miraculous power of kings and other exalted personages to cure diseases by the laying on of hands, he would realize that the phenomena which he regards as associated with religion are in fact to be found as an accompaniment of any popular movement or belief in which are found the elements of ignorance, credulity, superstition, mystery and compelling personality. He would also perhaps learn something of the value of human testimony and would discriminate more carefully as to his witnesses.

Mr. Weaver's book may be read with much profit by one desiring facts as to the different mental-healing sects. It is necessary, however, to discriminate carefully between the writer's statements of fact and his elaboration of theory. Its publication as a thesis by a fellow of Clark University and its introduction by Dr. G. Stanley Hall gives it a weight and an importance which makes careful criticism of its conclusions all the more necessary.

IRRITABILITY. A Physiologic Analysis of the General Effect of Stimuli in Living Substance. By Max Verworn, M.D., Ph.D., Professor at Bonn Physiological Institute. Cloth. Price, $3.50 net. Pp. 264, with 63 illustrations. New Haven: Yale University Press, 1913.

This volume comprises the eighth series of Silliman lectures, delivered at Yale University in 1911-1912. In this series of nine lectures the author endeavors to "show what information the analysis of irritability and of the effect of stimuli can give us of the nature of the processes in living substances." The historical development of the modern conception of irritability is outlined in the first lecture. Of special interest to the physician is the important contribution to the conception of irritability by Virchow in establishing the cell doctrine in pathology and medicine, with its corollary that "disease must be considered as a reaction of body-cells to stimuli." The subjects treated in the final chapter are the general effects of stimuli, the nature of the excitation processes, conduction of the excitation processes, the nature of fatigue, inhibition and narcosis.

Verworn is a recognized authority in the field of general physiology, and the volume is an interesting, and, on the whole, fairly complete digest of recent investigations in this field. It is but natural that he should give special prominence to work from his own laboratory and by his own pupils. Many scientists, however, will question his view that "the modern scientific conception of cause does not originate from experience, but is the remains of a part of the old anthropomorphic mysticism carried over into our own times" (page 20). Few physiologists will admit that Verworn makes out a strong case for his view that "fatigue is an extension of the refractory period." Yet the book will interest both the clinician and the laboratory man. Neurologists will be particularly interested in the evidence cited for the existence of the all-or-none law in nerve fibers; that is, that there is no such thing as nervous impulses of varying strengths in the same axis cylinder. If this contention of Gotch and of Verworn shall finally prove true we must greatly modify our present conception of the mechanism involved in weak and in strong voluntary movements in the same individual.

We are glad to be able to say that our leading American pathologists recognized long ago that "disease is life under

altered vital conditions and altered vital conditions are stimuli —the pathologist who does not wish to confine his observations to purely superficial symptomatology must seek to penetrate into the nature of the general reactions to stimulation in living organisms. In this field we expect much from pathologic investigation, which alone has abundant material at its command. But this will take place only when pathology adds to the histologic direction of the investigation that of experimental physiology" (page 72).

ABWEHRFERMENTE DES TIERISCHEN ORGANISMUS GEGEN KÖRPER.-, BLUTPLASMA- UND ZELLENFREMDE STOFFE, IHR NACHWEIS UND IHRE DIAGNOSTISCHE BEDEUTUNG ZUR PRÜFUNG DER FUNKTION DER EINZELNEN ORGANE. Von Emil Abderhalden, Direktor des Physiologischen Institutes der Universität zu Halle a.S. Second Edition. Paper. Price, 5.60 marks. Pp. 199, with 12 illustrations. Berlin: Julius Springer, 1913.

This is the second edition of the monograph issued a short time ago under the title of "Schutzfermente," the new title being selected in deference to the fact that the defensive action of the enzymes concerned in reaction to foreign substances does not invariably lead to a complete protection, as might be implied by the title "Schutzfermente." The value of this monograph lies in the fact that it represents a study of the fundamental processes of immunity from the standpoint of a progressive, biological chemist. As nearly all the work that has been done in this field, which is essentially chemical, has been accomplished by bacteriologists and pathologists who have had but slight appreciation of the chemical aspects of their work, it is not strange that a chemist finds many possibilities which his predecessors have overlooked. Professor Abderhalden is unusually gifted in his presentation of scientific work to general readers, and this book, like all his other writings, is interesting reading. The medical man who wishes to keep in touch with the advances of immunity will find profit and pleasure in Professor Abderhalden's latest summary of his work and ideas in this field.

IONIC MEDICATION. The Principles of the Method and an Account of Clinical Results Obtained. By H. Lewis Jones, M.D., Consulting Medical Officer to Electrical Department in St. Bartholomew's Hospital. Cloth. Price, $1.50 net. Pp. 151. Philadelphia: P. Blakiston's Son & Co., 1913.

This little book gives an unexaggerated, scientific statement of the principles and of the practice of ionic medication, and, unlike so many books, it has a reason for existence, for it is practically the only book on the subject. Ionic medication has a field of usefulness and the book is recommended as worthy of study.

HYSTERIE. Zur Frage über die Entstehung hysterischer Symptome. Von Dr. J. M. Raimist, Leiter der Nervenabteilung des jüdischen Hospitals in Odessa. Paper. 3.50 marks. Pp. 101. Berlin: S. Karger, 1913.

This is a dissertation on the origin of hysteric symptoms, based on a few cases as observed by the author. No new message will be found here, but a reiteration of what many have long contended, namely, that hysteria is an emotional disorder causing physical symptoms. That symptoms often disappear when the patient's attention is diverted from his malady has also been known for ages.

UEBER HALLUZINOSEN DER SYPHILITIKER. Von Privatdozent Dr. Felix Plaut, Wissenschaftlichem Assistenten der Psychiatrischen Universitätsklinik in München. Paper. Price 5.60 marks. Pp. 116. Berlin: Julius Springer, 1913.

In this interesting monograph the author makes an attempt to differentiate a certain type of hallucinatory psychosis occurring in syphilis of the nervous system from general paresis and the tabetic psychoses. He makes use of the new laboratory aids (1) Wassermann in blood, (2) Wassermann in cerebrospinal fluid with increasing quantities, according to Nonne-Hauptmann, (3) lymphocyte count, and (4) Nonne's globulin test. Having observed clinically, over long periods of time, cases that gave positive laboratory reactions of syphilis of the nervous system, but not the clinical signs of general paresis, tabetic psychosis or alcoholic paranoia, he concluded that the mental disturbances, chiefly of a hallucinatory character, belong to syphilis proper. He cautiously advances the view that such hallucinatory disturbances might be caused by the syphilitic poison in the same way as the gross physical lesions. The monograph is very suggestive; the histories are complete and the conclusions quite conservative. Perhaps one of the most instructive portions of the book is that in which the new laboratory aids in the diagnosis of brain syphilis are discussed.

Medicolegal

Manslaughter Is Such Neglect of Infant as to Cause Its Death —Duty of Poor Person as to Procuring Medical Aid for Child or Stepchild

(Stehr vs. State (Neb.), 139 N. W. R. 676)

The Supreme Court of Nebraska affirms a conviction of the defendant Stehr of manslaughter by negligently causing the death of his stepson, a child about 4 years of age, for which he was sentenced to the penitentiary for a term of from one to ten years. The court says that it appeared that the child, called "Kaurt," was to some extent afflicted with bed-wetting; that one very cold night, after a day of "blizzard," the defendant allowed the fire to go out altogether, although he had a small supply of coal; and, sometime during the night, he discovered that Kaurt had wet the bed; that the bedding was frozen stiff, and that the room was full of frost; that snow had drifted through the crack of the door, and through a broken window-pane, and the bedding on all of their beds was frozen stiff. Notwithstanding this situation, the defendant built no fire, and, as stated by him, he turned the bed-tick over on which Kaurt slept, and again placed the child in the bed alone, where he lay until the next morning. Shortly after this, and as early as the fifth day following, it was discovered that the child's feet had been frozen, and had begun to show signs of discoloration. Mrs. Stehr stated that the child's feet looked gray and somewhat green in spots. The defendant thereupon applied hot water and dressed the feet with cloths saturated with petrolatum. No physician was consulted or called until the sixteenth day after the freezing, at which time the child's feet were so badly decomposed that the stench arising therefrom had become unbearable. The defendant's wife then went to a merchant, with whom they were trading, and inquired for a German doctor. One was recommended, and he called to see the child, but declined the case because the defendant had no money. Another German physician was called, who on the same evening visited the child and also declined the case, but recommended that the city physician be notified of the situation. On the following day the city physician, who was a skilful surgeon, called at the defendant's house, examined the child, found a gangrenous condition of its feet, and informed the defendant that amputation was absolutely necessary. Meanwhile one of the county commissioners, who was active in securing assistance for the poor, furnished the defendant with a supply of coal and other necessaries, and arranged for the amputation. The child was taken to the home of a professional nurse, and on the following day the operation was performed and everything possible was done for the relief of the child. It was found, however, that sepsis or blood-poisoning had developed to such an alarming extent that a recovery was impossible, and on the twenty-second day after the freezing the child died.

The court says that it must be observed that the question actually submitted to the jury was whether or not the defendant was criminally negligent in failing to provide medical care for his stepson after he discovered the frozen condition of the child's feet. It was contended that the defendant was an ignorant German, unable to speak the language of this country, was without means to procure medical assistance, and therefore was not responsible for his neglect. The evidence showed, however, that he was a fairly intelligent man; that he was surrounded by his friends and neighbors, all of whom could speak both German and English; that he failed to mention the child's condition, or inform them of his neces-

sities. His own testimony showed that for ten or eleven days he saw the child's feet turn from gray to purple, from blue to green and black, and saw its flesh rotting and dropping away, yet made no effort to procure medical aid until the odor of the rotting flesh became unbearable. It seems idle to assert that he was so ignorant as not to realize the necessity for calling a physician.

The degree of negligence in such a case that would make a man criminally responsible can hardly be defined. It is not a slight failure in duty that would render him criminally negligent; but a great failure of duty undoubtedly would. The line between the two extremes is hard to define, and is a question that must be left to a great extent in each individual case to the common sense of the trial jury. It is for them to determine whether or not the degree of failure of duty is in fact criminal. As the court views the evidence, the jury had a sufficient basis for finding the defendant guilty of such criminal negligence as would amount to manslaughter.

The defendant was charged with the legal duty of seeing to it that the child's life was not endangered. If he realized the condition of the boy's feet and for ten days failed to call a physician, or if he negligently refused to ascertain the condition of the boy's feet in time to call a physician, then the jury would be justified in finding him guilty of criminal negligence.

For a parent having special charge of an infant child so culpably to neglect it that death ensues as a consequence of such neglect is manslaughter, although death or grievous bodily harm was not intended. If the parent has not the means for the child's nurture, it is his duty to apply to the public authorities for relief, and failure to do so is itself culpable neglect, wherever there are public authorities capable of affording such relief.

Exclusion of Milk from City—Health Officer Not Liable—Power of Department of Health

(Bellows vs. Raynor (N. Y.), 101 N. E. R. 181)

The Court of Appeals of New York affirms a judgment dismissing the complaint in this case, brought by the plaintiff, who was engaged in dairy farming, to recover damages from the defendant, chief of the division of general sanitary inspection of the department of health of the city of New York, for having, as the plaintiff alleged, trespassed on his property rights. The plaintiff complained that the defendant had unlawfully and wrongfully stopped the delivery of the plaintiff's milk product to a creamery, ordering and directing the creamery company not to receive the milk. The court thinks that the plaintiff was properly nonsuited, for, if the plaintiff's complaint was in trespass, the evidence failed to show an unauthorized entry on his premises, either by the defendant, or by any agent. If, however, the alleged "trespass on the property rights of the plaintiff" consisted in causing the interruption in the sale of his milk product, then no cause of action was made out. If what the plaintiff intended was to charge an illegal exercise by the defendant of official power, or of the powers conferred on the board of health, no cause of action was established. The complaint did not allege that the defendant acted in excess of his authority as an officer of the department of health, nor that he acted in bad faith, or without due care, or maliciously, and therefore, in what he did as such officer, he was protected by the statute against the consequences. Acting as an officer of the department of health, in good faith, if the defendant's acts caused any loss to the plaintiff, the latter's exclusive remedy, on the ground of an illegal exercise of power, was by an action against the city.

The argument that the department of health of the city of New York exceeded its lawful powers "in assuming to regulate the method of the production of milk by the plaintiff, and in prohibiting the creamery company from including plaintiff's milk in its shipments," was unsound, as was the argument that the statute, if conferring such an authority, was invalid as delegating to the officers of the municipality jurisdiction over the affairs of another locality. The department of health of the city of New York is charged by law with the responsibility of preventing pestilence and disease in the city of New York. Its duty is to enforce all laws applicable to the preservation of human life and the promotion of health, and such as relate to the use or sale of unwholesome, deleterious or adulterated food. In the faithful and efficient performance of that duty, the whole state, as well as the city, is concerned, and the department must be deemed to possess whatever power is needed to make effective the express powers conferred. So broad is the responsibility with which the department of health is charged that it is to give all information in its possession, relating to the existence and cause of disease, to the local health authorities of any city, village, or town, which may request the same, and to "add thereto such useful suggestions" as experience may supply.

Of the food supplies introduced into the city of New York, milk is one of the most important. It is now a matter of common knowledge that, if infected, it carries with it the germs, or bacilli, of dangerous and epidemic diseases. It is the food of the infant, and it is an important element of the food of the adult. It may be infected as it comes from the cow, or it may be contaminated by reason of the insanitary conditions of the dairy. Whatever, therefore, the department of health may do toward preventing the introduction of milk into the city of New York, which its officers have reason to believe to be unwholesome and deleterious, is in the performance of a statutory duty.

It is unreasonable to say that the department of health, in exercising such a power, renders itself amenable to the charge of exercising an extraterritorial jurisdiction. In notifying the creamery company not to include the plaintiff's milk in its shipments to the city, it was acting for the protection of the inhabitants of the city of New York, and therefore for local interests. There was no interference with the plaintiff's conduct of his farm or business, except as he proposed to supply milk to the city of New York; there was simply an embargo laid on the introduction, within the city of New York, of any milk not produced by him under conditions specified by the department. It had the right to exact from all shippers of milk a compliance with such conditions as would reasonably tend to a pure product for the use of the citizens as a condition of permitting its sale in the city of New York.

Contract Not to Practice in Vicinity After Dissolution of Partnership Binding

(Glover vs. Shirley (Mo.), 155 S. W. R. 878)

The Kansas City Court of Appeals reverses a judgment rendered for the defendant in this action to enjoin him from the practice of medicine anywhere within a radius of 10 miles of a named town, directing that a decree be entered for the plaintiff restraining the defendant as prayed in the petition, and for normal damages. The court says that the plaintiff was an established physician in said town, and desired the assistance of a younger man. After some preliminary talk at different times, he and the defendant, also a physician, entered into a written contract which stated that they had entered into a partnership for the general practice of medicine and surgery at said place, and surrounding territory, said partnership to continue so long as mutually satisfactory and agreeable to both parties, and to be terminable at the will of either, said parties to share equally the expenses and the profits of the partnership, and, in the event of the partnership being, for any reason, dissolved, the defendant agreed not to practice medicine or surgery, for a period of ten years, either by himself or as a member of a partnership, in said town, or within a radius of 10 miles from said point.

At the expiration of several months this contract was dissolved, and their partnership accounts settled between them. The defendant then located himself in the town, and began the practice of medicine, and the plaintiff, as already said, brought this action to restrain him. The law justifies such action. "That contracts restraining the exercise of a trade or profession in particular localities are valid, when there is fair and reasonable ground for the restriction, as in the case

of the sale of the good will of a trade or business, where the vendor covenants not to pursue the same business within certain limits, is beyond question." McClurg's Appeal, 58 Pa. 51. In *Gordon vs. Mansfield*, 84 Mo. App. 367, Smith, P. J., speaking for this court, made the observation that: "The doctrine had been at rest ever since Lord Kenyon declared in *Davis vs. Mason*, 5 T. R. 118, in which the bond of a surgeon not to practice within 10 miles of the place where the obligee lived was held good." And he further quoted Judge Scott's remark in *Presbury vs. Fisher*, 18 Mo. 50, that: "There is no practical man who would not smile at the conceit that the public welfare would sustain an injury by enforcing an obligation" which would prevent one from exercising a certain business in certain limits for a limited period.

There was no lack of consideration for the contract. The mutual obligations of a contract stand as a consideration for each other. It is proper to assume that the plaintiff would not have entered into the contract at all without incorporating the agreement not to practice in the named town.

Nor does it appear to the court that the mere failure to seek out the defendant and tell him he ought not to do what he agreed he would not do was sufficient to nullify the contract.

Laymen Mistaking Apoplexy for Drunkenness

(Middleton vs. Whitridge (N. Y.), 141 N. Y. Supp. 104)

The First Appellate Division of the Supreme Court of New York reverses a judgment rendered in favor of the plaintiff, as administratrix, against the defendant, as receiver of the Third Avenue Railroad Company, for damages for the death of one Lewis Middleton, a man aged 51, who had boarded a street-car, being kept on the car for five hours under the supposition that he was drunk, when, after he was finally taken to a hospital, his trouble was diagnosed as cerebral hemorrhage. The court says that it was conceded that the defendant was in no way responsible for the cerebral hemorrhage or stroke of apoplexy. It happened while Mr. Middleton was on the car, not because he was there; or on account of anything which occurred while there. The actionable negligence claimed, on which alone the judgment reversed rested, was the failure of the conductors, motormen, and starters of the street railroad company to properly diagnose his condition and promptly procure for him medical treatment and complete rest. The claim was that this neglect aggravated the condition, and accelerated the death, which might not otherwise have happened. This led to two inquiries. 1. Was there actionable negligence? 2. Was such alleged negligence the proximate cause of death?

While it is shocking to think that a man stricken with apoplexy should be carried around the city for five hours in an open street car, the question was: Did it follow that the defendant was responsible in money damages? It is established that, so far as external appearances are concerned, it is difficult to differentiate between intoxication and apoplexy. Even medical men and hospital officials make mistakes. Was it negligence, then, for the two motormen, two conductors, two starters, and an inspector to conclude that the man was under the influence of liquor, and not to discover that he had a stroke of apoplexy? It must be taken into consideration, also, that a policeman and two passengers came to the same conclusion, and that no passenger during all those five hours made any suggestion to the employees that the man was sick, rather than as he appeared.

The treatment by these employees of this unfortunate passenger, instead of being susceptible to the charge of gross brutality and inhumanity, seemed to have been actuated by a kindly and sympathetic feeling. Instead of being thrown off the car, he was allowed to remain where he had put himself, with the notion that it was the best thing for him; that he would sleep it off, and that he had better be in the open air.

No case holds a street railroad employee to the duty of correct medical diagnosis, and, when nothing is done to interfere with the passenger, holds the company responsible for an omission to call a physician or transport him to a hospital. The court thinks that actionable negligence was not made out. It does not seem that the responsibility for this death was traced to the defendant with that degree of certainty which the law requires. It was not responsible for the cerebral hemorrhage. It was really but guesswork to say that prompt attention would have saved the life. The defendant's liability as the proximate cause of death was not satisfactorily established. Therefore, on both grounds, the plaintiff failed to make out a cause of action.

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

(Continued from page 1659)

SYMPOSIUM ON BONE DISEASES

Unusual Bone Lesions

DR. A. HARTUNG, Chicago: I have seen three cases of osteitis fibrosa, two of them being of the deformans type, or Paget's disease. The roentgenogram is characteristic, showing a chronic inflammatory condition of the bony skeleton associated with a softening and overgrowth leading to deformities which are almost pathognomonic. There is a marked bowing and enlargement of the long bones, and hyperostosis and thickening of the flat bones. There is a coincident porosis and sclerosis, with areas resembling cyst formation. I have also seen a case of multiple bone cysts or osteitis fibrosa cysticus —von Recklinghausen's disease. These lesions are primary in the bone. Another type of bone lesion which is secondary to disease elsewhere in the body is hypertrophic osteoarthropathy of Marie. I have seen three cases of this type. There was a marked osteoperiostitis involving particularly the metacarpals and metatarsals. I cite these cases particularly to emphasize the fact that the roentgenogram furnishes an absolute means of diagnosis.

Chronic Typhoid Periostitis

MR. H. W. DACHTLER, Toledo, Ohio: There is such a condition as a typical typhoid periostitis and osteitis, which occurs late in the attack, or during convalescence. The periosteal inflammation is the most common; multiple lesions are frequent; bilateral involvement is not uncommon; the tibia is the bone most frequently involved. The bone changes are characterized not so much by the type of infection as by its virulence, and the condition may be confused with a syphilitic lesion unless the clinical history of the case is gone into carefully.

Roentgen Diagnosis of Bone Diseases

DR. W. C. HILL, Cleveland: Roentgenoscopy is of particular value as a method of differential diagnosis in the various types of arthritis, exostoses, bone cysts, sarcoma, carcinoma, enchondroma, osteomyelitis, tuberculosis, syphilis and Charcot's disease. The roentgenogram is so characteristic as to be pathognomonic. Atrophic arthritis is characterized by atrophy of the articular cartilages and erosion of the bones; hypertrophic arthritis, by thickening and lipping of the articular surfaces. Usually there is a small hook on the patella when the knee is involved, and it is the joint most often involved. In infectious arthritis there is a slight rarefication of the bone, with sometimes marked destruction of the articular surfaces. Sarcoma gives a fuzzy appearance and when it breaks through the periosteum the surrounding soft tissues are seen to be involved. This is characteristic of sarcoma—the numerous lamellae and straggling filaments of bone. At a still later stage the entire bone becomes destroyed. Carcinoma produces

a crater-like depression in the bone, the walls of which have a gnawed appearance. The surrounding bone appears absolutely normal. Bone cysts present a transparent cavity in the bone. They destroy the medulla, but never break through the cortex. In bone abscesses there is a surrounding envelope of ossifying periostitis, or eburnized bone.

Bone Syphilis

DR. PERCY BROWN, Boston: The fusiform subperiosteal overgrowths, usually near the joint, are the most common findings in bone syphilis. Sometimes the so-called Codman "blister" is seen. It represents a small area in the bone in which the infection seems to be particularly severe, and the periosteum overlying it seems to be elevated or raised from the bone. I have called this the "pudding-stone" type of periosteal hyperplasia.

DISCUSSION ON SYMPOSIUM

DR. P. M. HICKEY, Detroit: We must guard against making a diagnosis of syphilis because the lesion might be one of the others mentioned. On the other hand, we should look for syphilitic bone manifestations, especially in obscure cases. We should not, however, base a diagnosis on the roentgenogram alone, unless we are absolutely sure of our ground. The stereoscopic method is the preferable one.

DR. J. H. EDMONSON, Birmingham, Ala.: I have found syphilitic bone disease when three Wassermann tests were negative. Antispecific treatment, potassium iodid and mercury, effected a cure.

DR. F. H. BAETJER, Baltimore: The situation of the lesion will frequently help us. Carcinoma practically always starts in the bone where the nutrient artery enters. If the growth is elsewhere in the bone one can rule out carcinoma. In the non-malignant growths there is production of new bone, and it is symmetrical. The cortex is thinned out but intact. In the malignant growths the bone is destroyed, even the cortex. The non-malignant growths do not infiltrate the surrounding tissues, whereas the malignant growths do infiltrate. It is difficult to make a positive diagnosis of syphilis unless one or more bones are involved.

Fracture of Skull with Air in Ventricles

DR. WILLIAM H. STEWART, New York: A man sustained a fracture of the frontal bone in the region of the outer edge of the right frontal sinus. Later he had severe headaches, with occasional vomiting, and he became dull and listless. The neurologic diagnosis made at this time was "increased intracranial pressure, probably abscess." The ophthalmoscopic examination indicated a bilateral optic neuritis, also indicative of intracranial pressure. The leukocyte count was 15,900. The roentgenogram showed a dark circular shadow just back of the fracture. From the shape, location and course of this shadow, corresponding with the cerebral ventricles, the diagnosis of air in the cerebral ventricles was made. A needle was passed into the anterior horn of the lateral ventricle, and two or three quick spurts of air came from the needle when the obturator was removed. The patient died. It was subsequently learned that a severe pain in the head with a free discharge of fluid from the nose followed a violent blowing of the nose. The patient evidently established a communication between the nose through the right frontal sinus and anterior lobe of the brain into the right lateral ventricle, so that when he blew his nose he also inflated his cerebral ventricles.

DISCUSSION

DR. GEO. E. PFAHLER, Philadelphia: Dr. Pancoast and I had a patient referred to us who had become delirious apparently without cause. We roentgenoscoped the head and found an area of transparency in the left frontal region. We interpreted it at the time as a possible softening of the bone due to pressure. The patient got well in about six weeks, and further roentgenographic examinations failed to show this area. The history suggested sinus disease, but the sinuses were normal. We believe now that this was a case of air in the left ventricle.

Roentgenoscopy of Mediastinum

DR. GEORGE F. THOMAS, Cleveland: The symptoms that indicate mediastinal investigation are: (1) a feeling of oppression or sense of weight on the chest; (2) dyspnea; (3) dysphagia; (4) pain in mediastinum region possibly radiating to shoulders, arms, side of chest or upper abdomen; (5) tickling in throat, cough or desire to cough; (6) aphonia or hoarseness due to complete or partial paralysis of vocal cords; (7) enlargement of veins of face and neck; (8) unilateral flushing of face or unilateral dilatation of pupils; (9) tachycardia or bradycardia. The clinical history and physical examination may make the diagnosis. Roentgenoscopy always aids in doing so and may afford the only means for diagnosis. The position and shape of the mediastinum, the relation of the heart and great vessels, and anomalous shadows in the mediastinum are the points to bear in mind in making an interpretation of the roentgenogram.

DISCUSSION

DR. GEORGE E. PFAHLER, Philadelphia: There is danger of diagnosing beginning aneurysm in cases in which there is a projecting shadow in the region of the descending arch. In a case of that kind there was simply a tortuosity of the aorta causing clinical symptoms of aneurysm. This was confirmed at the necropsy. A fluoroscopic examination is of great value in these cases.

DR. A. HOWARD PIRIE, Montreal: Examining a patient with the fluoroscope and rotating him gives a stereoscopic effect on the screen, which is very valuable in an examination for aortic aneurysm.

DR. WILLIAM H. STEWART, New York: A dilated esophagus may cause mediastinum trouble and that may occur in case of carcinoma at the cardia. Cardiospasm must also be considered; likewise diverticulum.

DR. F. H. BAETJER, Baltimore: Cardiospasm is closely associated with the position of the stomach. In every case of cardiospasm that I have seen there has been a distinct marked prolapse of the stomach.

DR. L. T. LEWALD, New York: I saw two cases recently in which there was marked prolapse of the stomach in conjunction with cardiospasm. In six cases I have seen a transposition of the heart, three within the past year.

DR. KENNON DUNHAM, Cincinnati: The trachea is a landmark in all chest work. Its position will often help us to make a diagnosis.

Therapeutic Pneumothorax

DR. KENNON DUNHAM, Cincinnati: I have made stereoscopic roentgenograms for the purpose of mapping out the extent and location of an artificial pneumothorax, and have found that they are far more reliable and accurate than the results of a physical examination. One can see the cavities becoming obliterated by successive injections of gas, and the position of the heart may be determined accurately. Therapeutic pneumothorax is a routine procedure in the Cincinnati Tuberculosis Hospital, but it is always safeguarded by stereoroentgenograms.

DISCUSSION

DR. F. H. BAETJER, Baltimore: The great difficulty we have to contend with in producing artificial pneumothorax is pleural adhesions, so that in some cases it was almost impossible to get the lung sufficiently collapsed to be of permanent value. As to the formation of a hydropneumothorax, patients, as a rule, suffer little discomfort unless the fluid is excessive in amount.

DR. L. T. LEWALD, New York: Can you tell beforehand from the Roentgen findings whether or not it is going to be difficult to produce a pneumothorax?

DR. KENNON DUNHAM, Cincinnati: Overfilling the pleural cavity is not only detrimental to the progress of the case, but dangerous to the life of the patient. There are two ways to judge that—by the clinical symptoms and by the roentgenogram. When there are no pleural adhesions there should be no difficulty. When they are present the gas will not flow in readily and only in limited amount. The accumulation of

fluid is an important matter. I have not had it occur in my work until last August, when I saw two cases. The amount is usually slight and the roentgenogram will tell you whether it is of any significance. I have not been able to tell beforehand whether we could inject the gas or not. In four of our twenty cases we could not find any pleural space—and we tried many times and at intervals.

Roentgenotherapy of Raynaud's Disease

DR. W. S. NEWCOMET, Philadelphia: I have had three cases of Raynaud's disease, in which roentgenization of the fingers was productive of good results. In the first case the tips of the fingers had ulcerated. Roentgenization was employed for a period of six months. The ulcers healed and the patient has since been free from pain. The ulcers have not recurred. The remaining two cases were similar to this one. The dosage in these cases was extremely mild, and the patients suffered no discomfort and no sequelae.

Roentgen Diagnosis of Membranous Pericolitis

DR. GEORGE H. STOVER, Denver: In nine cases I have been able to diagnose roentgenographically a membranous pericolitis, the diagnosis being confirmed by operation. The picture seen was that of a malposition and deformity of the cecum, at times attended by more or less obstruction at the ileocecal junction, the latter also being characteristic of chronic appendicitis. The cecum does not change its position much through a series of plates. It is pulled inward from its usual position and is bent into the form of an arc with the convexity toward the right side of the body.

DISCUSSION

DR. A. HARTUNG, Chicago: It might be possible to determine whether or not adhesions were binding the ascending colon to the transverse colon by changing the position of the patient.

DR. GEORGE H. STOVER, Denver: My patients were standing when the roentgenograms were made. I have also found that when there is a chronic irritation produced by an appendicitis, there is a lagging of the food in the terminal ileum—not due to an obstruction.

Roentgenoscopy in Diagnosis of Heart Lesions

DR. W. J. DODD and DR. GEORGE C. SHATTUCK, Boston: In a series of cases the size and location of the heart and the lung margins by percussion was checked up by roentgenoscopy, and it was found that the former was far from being accurate; in fact, in none of the cases was it possible by physical means to make an accurate location. The roentgenogram showed that percussion had erred considerably, sometimes to the extent of an inch, in outlining the exact position of these viscera. The physical examination was made first and wires fastened to the chest wall to indicate the findings. Then the roentgenogram was made.

SYMPOSIUM ON GASTRO-INTESTINAL DISEASES

Roentgenoscopy of the Stomach

DR. LEWIS GREGORY COLE, New York: I consider all localized areas of induration in the wall of the stomach, particularly those protruding into the lumen, as malignant. Serial roentgenograms are essential to a correct diagnosis. Small annular carcinomas that have not been recognized by fluoroscopy or single roentgenograms have been detected by a series of roentgenograms. A normal gastric secretion should not contra-indicate a thorough roentgenoscopy. Postpyloric ulcer is characterized by a constant deformity of the cap or pyloric sphincter caused by the induration or cicatricial contraction around the crater of an ulcer. In some instances the ulcer is viewed in profile; its indurated edges project into the intestinal lumen, and its crater is filled with bismuth. The puckering from cicatricial contraction may cause a deformity equally as great as the induration. Frequently, in addition to the deformity of the cap, there is a band of adhesion passing over on the gastric side of the sphincter, distorting the contour of the extreme pyloric end of the stomach. Not every deformity of the cap, however, is necessarily a postpyloric (duodenal) ulcer; it may be a spasm.

Roentgen Diagnosis of Duodenal Ulcer

DR. ARIAL W. GEORGE, Boston: The exact method of diagnosing duodenal ulcer roentgenographically consists in demonstrating adequately the anatomic condition of the first portion of the duodenum. Ninety-five per cent. of duodenal ulcers occur in the first portion of the duodenum, and anatomically this part of the duodenum is a constant entity. It can always be demonstrated on the roentgenogram. A constant defect in the duodenal cap means a pathologic condition, such as ulcer, adhesions, cholecystitis, pressure of adjacent organs, and so forth. Any duodenal ulcer which is more than a simple mucous membrane erosion will deform the outline of the bismuth mass. A normal duodenal cap rules out indurated or surgical duodenal ulcer. We have been able to make a positive or absolute negative diagnosis.

The Stomach as a Reflex Organ

DR. A. W. CRANE, Kalamazoo, Mich.: The reactions of the stomach to reflex influences from without are manifested by cardiospasm, pylorospasm, hour-glass contraction, increased and decreased peristalsis, change in outline or position of pyloric antrum, and alterations in the character and quantity of the gastric juice. Gastric ulcer and duodenal ulcer are natural sequences. Roentgenologists must be careful to differentiate between true organic disease of the stomach and disease located outside of the stomach, manifested reflexly. Reflex stomach disturbances continued long enough finally give rise to actual organic stomach disease.

Indications Afforded by Roentgenoscopy For and Against Operations on the Stomach

DR. A. HOWARD PIRIE, Montreal: Chronic gastric ulcer, hour-glass stomach, gastric carcinoma, pyloric stenosis, caused by duodenal ulcer or carcinoma, gastroptosis, tumors pressing on and distorting the stomach, foreign bodies in the stomach and stenosis of the cardiac opening can definitely be recognized roentgenographically. Each condition gives a characteristic appearance on the roentgenogram. With reference to gastro-enterostomy, I examined about a dozen dogs and cats on which experimental gastro-enterostomy had been done. I found that when the operation was performed without closing the pylorus it was not a success; that it was a success when the pylorus was closed and the new opening was made near the pylorus; that it was not a success when the pylorus was closed and the new opening was in the cardiac end of the stomach. The rate of exit of food through a gastro-enterostomy opening is variable. It may pour through the stomach, so that gastric digestion is impossible. When the opening is at a considerable distance from the pylorus, residual food remains in the stomach between the pylorus and the opening. The indented appearance of carcinoma is so characteristic that one should be able to find it in very early cases. When barium remains more than six hours in the stomach, it is usually due to pyloric obstruction. Stenosis caused by carcinoma is usually evidenced by characteristic, finger-like indentations. When due to duodenal ulcer, typical changes are noted in the first part of the duodenum. Adhesions affecting the stomach can be recognized directly and indirectly. The normal stomach may show certain anomalies against which we must be on guard. Besides finding indications for and against operation by means of roentgenoscopy, we are at times justified in recommending medical treatment.

Discussion on Gastro-Intestinal Diseases

DR. JAMES T. CASE, Battle Creek, Mich.: These patients should be examined with the fluoroscope as well as with the roentgenograph. The duodenal cap can be shown fluoroscopically in a great majority of cases. Its mobility during inspiration and expiration can be shown, and its relation to the definite pain point on pressure can be ascertained in a large number of cases. I have seen the appendix fluoroscopically in over three hundred individuals. I have also seen the appendix of this number of individuals in the roentgenogram.

The structures in the pyloroduodenal region can also be shown. I have seen a number of cases of hour-glass stomach due to penetrating ulcer on the lesser curvature, when the patient had had a gastro-enterostomy.

DR. GEORGE H. STOVER, Denver: Surgeons often fail to confirm our diagnosis because their fingers cannot feel what the roentgenogram shows. I have found in a number of cases that a chronic appendicitis will produce a spasm of the stomach.

DR. F. B. BAETJER, Baltimore: When the bismuth meal or food strikes the ulcer in the stomach or duodenum, it sets up contractions or peristaltic waves. The pylorus closes and the stomach contents are retained in that viscus. In the duodenum the same thing takes place, with the exception that there is not the spastic condition of the pylorus. I mean recent ulcers with no obstructive lesions. When the bismuth passes the pylorus and strikes the ulcer in the duodenum the irritation is set up, and there is a hypermotility of the duodenum, with rapid evacuation of its contents.

DR. ARTHUR F. HOLDING, New York: Serial roentgenograms are expensive, but the method is accurate, more so than fluoroscopy, because the sensitized plate is more sensitive to impressions than the retina of the eye. Objection has been raised to the expense of this method. In many cases a diagnosis cannot be made in any other way.

DR. GEORGE C. JOHNSTON, Pittsburgh: The combined method is the one that eventually will enjoy the most repute. We ought to be able to make a diagnosis of ulcer before the ulcer is formed, that is, when there is merely an irritation of the mucosa which gives rise to a change in the physiologic cycle of the stomach. This condition can be recognized with the fluoroscope.

DR. A. HARTUNG, Chicago: I had a case in which the roentgenograms showed a well-marked stenosis of the pylorus. The surgeon operated, but found nothing on macroscopic examination or palpation of the external wall of the stomach. He opened the stomach and then saw a benign annular growth near the pylorus. He did a gastro-enterostomy and the patient recovered.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

October, CXLVI, No. 4, pp. 469-624

1 Influence of Skeletal Defects, Congenital and Acquired, on Body in Health and Disease. C. F. Painter, Boston.
2 *Value of Roentgenoscopy in Diagnosis of Ulcer of Stomach and Duodenum. J. Friedenwald and F. H. Baetjer, Baltimore.
3 *Present Situation in Syphilis. W. A. Pusey.
4 *Heart in Syphilis. H. Brooks, New York.
5 *Syphilis in Etiology of Fibrous Osteitis. P. G. Skillern, Philadelphia.
6 *Case of Strychnin Poisoning. A. W. Hewlett, Ann Arbor, Mich.
7 *Insufficiency of Pulmonary Valve. H. B. Allyn, Philadelphia.
8 Training of Students in Internal Medicine at German Universities. M. Matthes, Marburg, Germany.
9 Normal Coagulation of Blood, with Description of Instrument Used. G. M. Dorrance, Philadelphia.
10 *Chronic Ulcer of Pylorus (Duodenal and Gastric). G. P. LaRoque, Richmond, Va.

2. **Ulcer of Stomach and Duodenum.**—Twenty patients were first studied clinically by Friedenwald, and then without any note being given as to the nature of the disorder, were referred to Baetjer for Roentgen examinations. The two reports were then placed side by side, and the clinical and Roentgen diagnoses corresponded so closely in every instance as to make the results appear most striking. The authors' general conclusions in reference to duodenal ulcer are these: There is excessive hypermotility of the stomach, with rapid emptying of contents, so that the greater portion of the stomach contents is emptied within the first half hour, the stomach contraction being practically normal and there is no evidence of hour-glass formation. There is hypermotility of the duodenum, with formation of a vacant area which remains fixed in all the examinations. The presence of a duodenal ulcer in simple cases uncomplicated by adhesions can practically always be determined. In gastric ulcer the question of the normal motility of the stomach is still open to debate, as evidenced by the fact that various authorities have given from two to six hours as being a normal period for expulsion of the bismuth contents.

At present it seems to Friedenwald and Baetjer that the gastric ulcer can be diagnosticated in certain situations only. From the roentgenographic standpoint one is able to see practically only one surface of the stomach and a portion of the greater and lesser curvatures. Should the ulcer be situated on the posterior surface of the stomach near the lesser curvature, it is not visible because the bismuth contents of the stomach completely obscures that side; consequently we are unable to see any alterations or irregularities of the peristaltic waves. It is only when the lesion is situated on the anterior surface of the stomach, and along the anterior surface of the lesser and greater curvature, that we can come to any conclusion. If the lesion is on the lesser curvature close to the pylorus, by making repeated examinations of the stomach we are able to see irregularities in the peristaltic waves, due to the induration and partial fixation of the ulcer. The diagnosis between gastric and duodenal ulcer from clinical signs alone is often very difficult, and many clinicians consider it impossible in many instances to differentiate between the two. The roentgenoscopic findings of the two conditions differ, however, so markedly that this method affords an almost positive means of differentiation.

3. **Present Situation in Syphilis.**—Pusey summarizes his paper as follows:

1. Salvarsan has real dangers; they are remote, but, when they occur, serious. 2. As far as can be deduced from our present knowledge there is no reason to believe that salvarsan will lessen the occurrence of parasyphilitic nervous affections, and some ground for fear that it may predispose to them, except in those cases in which it cures the disease. 3. It is a powerful symptomatic remedy. 4. In cases in which vigorous treatment is begun before the generalization of the disease there is strong ground for believing that syphilis can be aborted. This possibly applies to a few early cases with secondaries. 5. In all other cases in the secondary period its "curative" use may do more harm than good.

4. **Heart in Syphilis.**—Serious involvement of the heart Brooks has found to be frequent in syphilis. Epicardium, endocardium or myocardium or all together may be diseased. Cardiac involvement, he says, may develop early in the infection, though its symptoms may not be apparent until late. The signs and symptoms are those of cardiac disorder, and little or nothing except the history, general aspects and the Wassermann reaction may indicate the true etiology. Treatment should be first along indicated circulatory lines, secondary as to time, but most productive and important of all, it must be specific. Good results, cures in many instances, will follow appropriate antisyphilitic treatment. Brooks insists that the special method of treatment should be individual, but both mercury and salvarsan are efficacious in the condition; usually they are preferably combined; in some instances the former, in others the latter acts best. Iodin is an efficient adjuvant in at least some instances. Treatment should be continued until a permanent negative Wassermann is attained. Subsequent to this the management of the case should be along circulatory, not luetic lines.

5. **Syphilis in Etiology of Fibrous Osteitis.**—Fibrous osteitis, in some cases at least, in Skillern's opinion, is identical with late hereditary syphilis of bone. He urges that the connection of syphilis with this and other bone diseases of obscure etiology should be thoroughly worked out with the great aid now afforded by the Wassermann reaction. The disease is curable by conservative measures, and may be struck off from the fast-shrinking list of bone diseases requiring amputation.

6. **Case of Strychnin Poisoning.**—The case cited by Hewlett is noteworthy because of the amount of strychnin taken (15 grains). The fatal dose is commonly stated to be ½ to 1¼

grains, although according to Gadamer it is considerably higher (2 to 6 grains). Over 1 3/5 grains were recovered from the urine. The recovery of the patient was due in part to the presence of food in the stomach, which retarded the passage of the poison into the intestines and in part to the prompt emptying of the stomach at the onset of symptoms; 4½ grains were obtained from the first stomach washings, but unfortunately, the later washings were not analyzed. The case is interesting on account of the attempt to determine quantitatively the amount of strychnin excreted in the urine and the rate of excretion. During the earlier stages of the poisoning the amount of urine was diminished. At best not more than 23 c.c. per hour were excreted during this period, and it seems probable that very little urine was formed during the acute symptoms. The marked increase in the second portion of urine (58 c.c. per hour) Hewlett believes was due mainly to the improved renal circulation, for the salt solution enema given forty minutes before this urine was obtained could hardly have been solely accountable for the considerable quantity of urine. The subsequent flood of urine was evidently due in part to the enemata and in part to the improved renal circulation.

During the acute stages of the poisoning very little strychnin was excreted, only 1 milligram having been obtained from the urine passed five hours after taking the strychnin. Had the patient died within two hours Hewlett says still smaller amounts, probably only traces, would have been recovered from the urine. Following this period the excretion of strychnin increased rapidly, the maximum being reached in ten hours when 49 milligrams were excreted, an average of almost 1 milligram per hour. During the second day no analyses were made. On the third day a distinct trace was obtained, and on the fourth a faint trace. On the fifth day no strychnin was obtained. Altogether, about 96 milligrams (1 3/5 grains) were recovered from the urine. The analyses are noteworthy in showing (1) how little strychnin was excreted during the most acute stage of the poisoning; (2) that the major amount was excreted within twenty-four hours, and (3) that the excretion was not completed for three or four days.

7. **Insufficiency of Pulmonary Valve.**—The chief points in the diagnosis of pulmonary insufficiency are its frequent association with mitral obstruction, the diastolic murmur along the left edge of the sternum from the second interspace downward, the occurrence of marked pulmonary symptoms, with cyanosis, and the special phenomena pointed out by Gerhardt and Bamberger. Allyn believes that it is probable that relative pulmonary insufficiency occurs more frequently than we are wont to believe. Cases have been reported by Graham Steel, Gibson and more recently by Rudolph. He also regards it as not unlikely that in some of the cases of aortic insufficiency in which the diastolic murmur is heard best in the third and fourth interspace to the left of the sternum, that the explanation may be an associated pulmonary insufficiency, usually of relative character.

10. **Chronic Ulcer of Pylorus.**—The actual pathology of pyloric ulcer in La Roque's opinion is that of central necrosis of an area of inflammation, the necrosis resulting from capillary and arterial blocking by hyperplastic connective tissue and inflammatory exudate. The exciting cause of the inflammation causing the necrosis is bacterial infection. The original source of the bacteria is from some focus of inflammation in that part of the body drained by the portal vein, namely, the small intestine, appendix, cecum, colon, sigmoid, upper part of the rectum, liver, bile tract, pancreas and finally the stomach itself. The bacteria are carried to the liver through the portal vein. They are eliminated in the bile after being filtered through the liver. The infection is deposited by the bile into the proximal duodenum or according to the new nomenclature, pyloric fundus, sac, or chamber.

The clinical phenomena of pyloric spasm are dependent on the pathology of duodenal pyloritis. Pyloritis, pyloric ulcer, bile-tract infection, pancreatitis, and perhaps cirrhosis of the liver are late results of infection primarily located most commonly in the appendix, though in many cases in some other region drained by the portal vein; and these lesions frequently exist together in the same patient at the same time or may follow each other in rapid or slow succession. Finally, La Roque claims that the cause of pyloric ulcer (inflammation) is probably always primarily located on the duodenal side, and that so-called gastric ulcers are a result of extension of infection from the duodenal, through the lymph vessels in the wall of the pylorus to the gastric side.

Annals of Surgery, Philadelphia

October, LVIII, No. 4, pp. 433-576

11 *Treatment of Tuberculous Cervical Lymphadenitis. G. P. Müller, Philadelphia.
12 *Case of Excessive Thickening of Thiersch Grafts Caused by Component of Scarlet Red (Amidoazotoluol.) J. S. Davis, Baltimore.
13 Embolism and Thrombosis of Superior Mesenteric Artery. L. Noland and F. C. Watson, Cristobal, Canal Zone.
14 Cause and Treatment of Certain Unfavorable After-Effects of Gastro-Enterostomy. A. F. Hertz, London.
15 Rectus Transplantation for Deficiency of Internal Oblique Muscle, in Certain Cases of Inguinal Hernia. W. S. Schley, New York.
16 Recurrence of Inguinal Hernia. A. J. Hull, London.
17 *Contracture of Psoas Parvus Muscle Simulating Appendicitis: Report of Cases. G. R. White, Savannah, Ga.
18 Reduction of Fragments Preliminary to Internal Splintage in Cases of Fracture of Long Bones. G. H. Colt, Aberdeen, Scotland.
19 Fractures Through Trochanters of Femur. A. P. C. Ashhurst, Philadelphia.
20 Simultaneous Fracture of Both Patellae. C. R. Steinke, Philadelphia.
21 Uncomplicated Fractures of Tarsal Scaphoid. A. E. Horwitz, St. Louis.
22 Cyst of Fifth Metacarpal Bone. J. R. McDill, Milwaukee.
23 Direct Suture of Brachial Artery Following Rupture, Result of Traumatism. J. G. Sherrill, Louisville, Ky.
24 Suction Tip for Aspiration in Abdominal Operations. E. H. Pool, New York.

11. **Tuberculous Cervical Lymphadenitis.**—After a careful history has been obtained and an examination made, Müller says, the portal of entry can usually be surmised and if necessary the tonsil, adenoid or carious tooth should be removed, or any ulcer, scab, pediculosis, otitis, etc., attended to. In those cases seen early with only a small area involved and in which the child is in good general health, an operation should be advised. If the social position permits, this dissection should be confined to the macroscopic group with a minimum scar and the child sent to the seashore and kept from school for one year; the general and hygienic details of treatment being carried out with scrupulous care. In the case of the poor child or where such cannot be carried out, Müller thinks the entire submaxillary and cervical chains above the omohyoid should be excised. The general treatment must then be carried out at home. If the case is seen late with one or both sides choked up, the Roentgen ray is often of advantage in reducing the hyperplasia and a radical dissection can be carried out at an opportune time. If caseous abscesses, sinuses, etc., exist they should be opened up, curetted out and an effort made to thoroughly clean up the tuberculous granulation tissue after which the Roentgen ray is often invaluable in promoting healing.

Müller prefers the transverse incision whenever possible, especially for the submaxillary and upper part of the deep cervical. When the mass has crossed posteriorly beneath the muscle or involved the posterior superficial cervical chain, an oblique incision from the posterior edge of the mastoid along the posterior edge of the muscle to just below its middle and then prolonged transversely to the thyroid muscles will give a large field area. Finally, intratracheal insufflation anesthesia offers immense advantages in difficult cases, although pharyngeal insufflation anesthesia suffices for the easy ones. At all times it is important to keep in mind that we are "not only treating a case of tuberculous glands, but are dealing with a human being infected with tuberculosis. The difference between the two points of view is enormous, and the success will largely depend on the one chosen by the physician" (Hawes).

12. **Thickening of Thiersch Grafts.**—The epithelium of Davis' patient seemed to be particularly responsive to the stimulation of amidoazotoluol, and these thickened grafts present the most remarkable condition of overgrowth which has

come under his observation. Thiersch grafts which were subsequently applied to unhealed portions of the same wound, under exactly the same conditions, but without being dressed with amidoazotoluol, were not thickened. There was also great thickening of the deep pinch grafts placed on the undisturbed granulations of an ulcer on the scalp, which had been treated with amidoazotoluol before and after the application of the grafts. There was no such thickening, however, of similar grafts placed on undisturbed granulations, when not dressed with amidoazotoluol. There was distinct overgrowth of epithelium, "pebbly formation," on the thigh, when the area from which the Thiersch grafts were removed was dressed with amidoazotoluol ointment. Another area on the thigh from which Thiersch grafts were taken, but which was dressed with boric ointment, showed no "pebbly formation." The patient has been under observation for over two years and a half since his discharge from the hospital, and there is no sign of malignant degeneration anywhere.

17. **Simulating Appendicitis.**—An analysis of White's cases shows that pain, tenderness and apparent tumor were present in all cases. The pain came on suddenly in two, gradually in five; it was limited to the side of the abdomen in five, and was referred to the leg in two. Four with extreme tenderness showed rigidity of the abdominal muscles on the right side, but this was probably a voluntary act. Fever was not present in any case, and the digestive disturbances seen in two of the patients were probably coincidents and had no relation to the trouble. One of the patients was markedly neurasthenic, the other six were not. Long-continued severe pain in the right iliac fossa with a marked tumor, but without fever and without digestive disturbances, White says, would indicate trouble other than appendicitis. However, it is not essential that the diagnosis should be made before operation, provided the condition is recognized, if present, as soon as the abdomen is opened. The presence of a tense tendon along the edge of the psoas magnus renders diagnosis easy through an exploratory incision.

Arkansas Medical Society Journal, Little Rock

October, X, No. 5, pp. 119-144

25 New Method of Transplantation of Bone to Close Defects in Skull where Large Areas Have Been Destroyed by Trauma or Disease. J. Smyth, New Orleans.
26 Hydrophobia. L. Thompson, Little Rock.
27 Treatment of Amebic Dysentery. A. F. Hoge, Fort Smith.
28 Repair of Perineal Injuries. A. E. Cox, Helena.

Boston Medical and Surgical Journal

October 23, CLXIX, No. 17, pp. 593-628

29 Some Peculiarities of Medical Progress with Illustrations from Studies of Articular Conditions. H. W. Marshall, Boston.
30 *Anatomic and Surgical Study of Pericecal Membranes. M. F. Fallon, Worcester, Mass.
31 Evolution of Mental Healing. C. F. Painter, Boston.

30. **Anatomic and Surgical Study of Pericecal Membranes.**—Fallon agrees with others that the so-called Jackson membrane is always present, and is in fact a normal structure for the following reasons: He has always found this membrane when he has looked for it; it has all the characteristics of a normal, congenital, peritoneal membrane. It is a delicate structure of equal consistency throughout; even, transparent, and with orderly vascularization. It may be traced to the peritoneal plates of the omentum and may be seen to be continuous with them; especially, when an ascending mesocolon is present. But even when the ascending colon is fused to the parietal peritoneum, the veil can be seen to be continuous with the serous covering of the mesocolon by detaching the fused parietal peritoneum. Here the veil may be seen running under the parietal peritoneum, and to be continuous with the mesocolon. The same membrane envelops the remaining colon, having the same characteristics that it has on the ascending colon. This may well be seen on the transverse colon. He believes that the Jackson membrane is a congenital, normal, constant structure, and is not disabling to the cecum and ascending colon, and is not a membranous pericolitis. That there is a definite pericolitis, however, is established, but it has no relation whatever to the so-called Jackson membrane.

Journal of Abnormal Psychology, Boston

October, VIII, No. 4, pp. 217-288

32 Formulation in Psychoanalysis. F. L. Wells, Waverly, Mass.
33 Psychopathology of Case of Phobia: Clinical Study. M. Prince, Boston.
34 Psychologic Analysis of So-Called Neurasthenic and Allied States. T. Burrow, Baltimore.
35 Possible Correlation Between Delusions and Cortex Lesions in General Paresis. E. E. Southard, Boston.

Journal of Biological Chemistry, Baltimore

October, XVI, No. 1, pp. 1-186

36 Partial Purification of Esterase in Pig's Liver. G. Peirce, Madison, Wis.
37 Compound Formed Between Esterase and Sodium Fluorid. G. Peirce, Madison, Wis.
38 *Rate of Elimination of Nitrogen as Influenced by Diet Factors: Influence of Texture of Diet. L. B. Mendel and R. C. Lewis, New Haven, Conn.
39 *Idem: Influence of Carbohydrates and Fats in Diet. L. B. Mendel and R. C. Lewis, New Haven, Conn.
40 *Idem: Influence of Character of Ingested Protein. L. B. Mendel and R. C. Lewis, New Haven, Conn.
41 Carbon Dioxid and Oxygen Content of Blood after Clamping Abdominal Aorta and Inferior Vena Cava Below Diaphragm. J. R. Murlin, E. Edelmann and B. Kramer, New York.
42 Separation of d-Alannine and d-Valine. P. A. Levene und D. D. Van Slyke, New York
43 Gasometric Determination of Aliphatic Amino Nitrogen in Minute Quantities. D. D. Van Slyke, New York.
44 Improved Methods in Gasometric Determination of Free and Conjugated Amino-Acid Nitrogen in Urine. D. D. Van Slyke, New York.
45 Researches on Purins. C. O. Johns and E. J. Baumann, New Haven, Conn.
46 Polyatomic Alcohols as Sources of Carbon for Lower Fungi. R. E. Neidig.
47 *Comparative Composition of Human Milk and of Cow's Milk. E. B. Meigs and H. L. Marsh, Philadelphia.
48 Influence of Administration of Creatin and Creatinin on Creatin Content of Muscle. V. C. Myers and M. S. Fine, New York.

38. **Rate of Nitrogen Elimination.**—The typical curve of nitrogen elimination on a selected mixed diet Mendel and Lewis found showed a rise in the first period, reaching a maximum in the second three hours, followed by a fall to the initial level early the next day. With a definite diet it was always possible to duplicate experiments on the same animal. Different animals on the same type of diet have given parallel curves. A delay in the elimination of nitrogen was caused by the addition to the diet of such indigestible materials as mineral oil, vasoline, bone ash, paraffin, filter paper, cork, and agar-agar substances which act in a purely mechanical as contrasted with a chemical manner. Invariably there was a subnormal rate of nitrogen output in the first periods following ingestion of the meal; with paraffin, filter-paper, cork and agar-agar this was followed by a higher rate in the later periods. The effect of the indigestible materials was progressively greater in the order in which they are given above. A delayed absorption of the nitrogen intake, they believe, is presumedly responsible for the slower rate of elimination of nitrogen. As suggested: (1) a slower rate of digestion caused by an early emptying of the stomach and a consequent early exclusion of gastric proteolysis, with the possibility of a more prolonged intestinal digestion; (2) a slower rate of digestion caused by an adsorption of partially digested protein residues by the added indigestible material, making them less readily accessible to the action of the digestive enzymes; (3) an adsorption of the final digestive products by the indigestible substance whereby their absorption from the intestine is hindered.

39. **Idem.**—Carbohydrates in the diet, Mendel and Lewis state, cause a slower rate of elimination of nitrogen after a protein meal, the various carbohydrates studied having a progressively greater effect in the following order: starch, soluble starch, sucrose, dextrose. The experimental data do not warrant the adoption of more than a tentative theory as to the explanation of the retardation of nitrogen excretion when carbohydrates are present in the diet. It seems quite probable to the authors, however, that the protein-sparing action of carbohydrate is responsible for this delay. The effect on the nitrogen-output curve of replacing the non-nitrogenous constituents of a mixed diet by fat varied with the character of the fat as follows: (a) with the fluid cotton-seed oil there was a

slower rate of nitrogen elimination; (b) with lard and "oleostearin," the nitrogen excretion in the early periods following the meal was above the normal. The apparent action of these latter fats was shown to be in reality the result of removing the sucrose from the diet. The action of cotton-seed oil *per se* was to cause a marked delay in the rate of elimination of nitrogen. Neither lard nor "oleostearin" by themselves had any effect on the nitrogen-output curve.

40. **Idem.**—Apart from the character of the protein ingested Mendel and Lewis found that a large number of diet factors—the water intake, the presence and nature of indigestible materials in the diet, the amount and character of the carbohydrate fed, and to some extent the presence of fat in the diet—play a rôle in modifying the rate of elimination of nitrogen after a meal containing protein. With most of the proteins studied the nitrogen-output curves differed to only a slight extent from one another; and in no case did the nature of the protein have a greater effect on the rate of nitrogen elimination than some of the non-protein diet factors mentioned.

47. **Composition of Milk.**—Human milk, Meigs and Marsh state, differs from cow's milk in three important ways. It contains considerably more lactose than cow's milk, and more substances of unknown nature which contain little or no nitrogen; it contains very much less protein than cow's milk. The composition of milk varies more or less regularly with the progress of lactation so that average figures for its composition are not very satisfactory. The following, however, are given as the limits of normal variation of the constituents of the two kinds of milk from the beginning of the second month of lactation onward, the figures representing percentages of whole milk:

	Fat	Lactose	Protein
Human milk	2-4	6-7.5	0.7-1.5
Cow's milk	2-4	3.5-5	2.5-4

Both kinds of milk contain substances which are important constituents of diet, which are soluble in alcohol and ether, which contain little or no nitrogen, but of which the chemical nature is still unknown. These substances are most plentiful in early human milk and diminish in amount with the progress of lactation. Early human milk contains about 1 per cent. of these unknown substances; milk from the middle period of lactation, about 0.5 per cent. Cow's milk from the middle period of lactation contains about 0.3 per cent. of the unknown substances.

Journal of Nervous and Mental Disease, Lancaster, Pa.

October, XL, No. 10, pp. 617-680

49 *Pathology of Myasthenia Gravis. S. Kuh and M. Braude, Chicago.
50 *Rôle Which Heredity Plays in Inducing Epilepsy in Children Suffering from Infantile Cerebral Palsy. L. P. Clark, New York, and E. A. Sharp, Buffalo.
51 Cerebral Palsies without Demonstrable Anatomic Findings. J. H. W. Rhein, Philadelphia.
52 Syphilitic Bone Disease of Skull. M. S. Gregory and M. J. Karpas, New York.

49. **Pathology of Myasthenia Gravis.**—Although examined serially from the lowest to the highest levels, the spinal cord of the case cited by Kuh and Braude presented but few characteristic changes, the most important consisting in occasional small areas of vascular sclerosis, recent hemorrhages, excess of glia tissue in regions in which normally it should not occur, and in the presence of corpora amylacea. An unusual finding was the presence of an aberrant bundle of fibers in the cervical region. There were present in the higher levels of the cord capillary polymorphonuclear thrombi and chromatolytic and pigmentary changes in the nerve cells. There was a rapid increase in the number of these capillary thrombi in the upper cervical, and a still greater number in the medulla oblongata in the regions of the nuclei of the lower cranial nerves, in the pyramids and sensory tract. In the proportion as the number of these thrombi increased, in just such proportion did the nerve cells in their vascular tributaries show chromatolytic and pigmentary changes. Although less pronounced, the regions of the pons and corpora quadrigemina were also the seats of a moderate number of these thrombi, which were likewise accompanied with corresponding changes in the nerve cells. There were relatively few vascular changes in the cortex and none in the optic thalami.

Examination of the muscles (about 50 pieces) showed only changes repeatedly described by others: great variability in the size of the muscle fibers, the presence of pale fibers, simple and degenerative atrophy, fatty degeneration, increase in the number of the sarcolemma nuclei; recent hemorrhages, interstitial perivascular infiltration of lymphocytes, plasma and mast cells. Macroscopically no trace of thymus gland. The case presented two unusual features, one clinical, not described elsewhere, namely, a feeling of fatigue produced by passive movements, and one pathologic, the occurrence of an aberrant bundle of fibers in the cervical region of the cord.

50. **Heredity in Epilepsy in Children.**—Clark and Sharp are of the opinion that the heredity factor in hemiplegic epilepsy is only a little less in evidence than that of genuine epilepsy, and that the prognosis as to a sequential epilepsy following in the wake of a given case of infantile cerebral palsy should be based on the presence and degree of spasmophilic or simple neurotic history, and that this latter fact should be given as much or even more weight than the site, nature and degree of the initial cerebral injury as expressed in the palsy.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, V, No. 1, pp. 1-103

53 Action of Serum on Perfused Heart of Rabbit. A. R. Cushny and J. A. Gunn, London.
54 Effect of Certain Oxidizing Substances and Acids and Alkalies on Isolated Mammalian Heart. A. S. Loevenhart and J. A. E. Eyster, Madison, Wis.
55 Apparatus for Perfusion of Isolated Organs especially Isolated Mammalian Heart. J. A. E. Eyster and A. S. Loevenhart, Madison.
56 Effect of Atophan and Novatophan on Endogenous Uric Acid Excretion of Normal Men. H. D. Haskins, Cleveland.
57 *Treatment of Experimental Beriberi with Extracts of Spinal Cord. C. Voegtlin and C. Towles, Baltimore.
58 *Action of Nitrites and Drugs of Digitalis Group on Isolated Coronary Artery. C. Voegtlin and D. I. Macht, Baltimore.
59 *Reversible Action of Adrenalin and Some Kindred Drugs on Bronchioles. F. L. Golla and W. L. Symes, London.

57. **Treatment of Experimental Beriberi.**—Voegtlin and Towles found that an aqueous extract of autolysed spinal cord from which coagulable protein has been removed, contains an antineuritic substance which cures symptoms of polyneuritis in rice-fed birds in daily doses corresponding to 4 grams of dried cord. This substance, when added to a diet of polished rice, is capable of removing the nervous symptoms of the disease, but cannot reestablish a normal metabolism, nor enable the affected birds to recover their body weight. The antineuritic substance is liberated through autolysis from the nerve fiber.

58. **Action of Digitalis on Coronary Artery.**—The pharmacologic action of various drugs on the coronary artery was studied by Voegtlin and Macht directly, that is, by the use of excised arterial rings or strips. Rings of the coronary arteries of the ox and the pig were used. Digitoxin, digitalin, digitonin, digitalein, digalen, bufagin, cymarin, strophanthin, tincture of digitalis, infusum digitalis, amyl nitrite, sodium nitrite, nitroglycerin, erythrol tetranitrite and theobromin were the substances used. It was found that digitonin and digalen produce relaxation, while digitoxin, digitalin and bufagin cause a constriction of the coronary arteries. It seemed that digitonin is responsible for the relaxation produced by digalen and the infusion of digitalis, for it is known that the infusion of digitalis and digalen both contain that body. All the nitrites were also found to produce relaxation. It was furthermore noted that the two sets of drugs, the nitrites and digitalis-like bodies, can antagonize each other in their action.

Work done on the physiology and pharmacology of circulation would seem to indicate that the action of the above drugs would be the same on the intact mammalian heart. The vasoconstrictors of the coronaries run in the vagus nerve, and knowing the powerful vagus action of digitoxin and bufagin, the coronary constriction if anything might be even accentuated in life. Whenever, therefore, coronary spasm is to be avoided or guarded against, it would be advisable to employ

the digitonin-containing preparations, or simultaneously administer the nitrites. Furthermore, if angina pectoris is due, as is generally assumed, to spasm of the coronary vessels, the authors are of the opinion that their results would certainly tend to explain the favorable action of the nitrites in coronary angina.

59. **Reversible Action of Epinephrin.**—Golla and Symes found that the action of epinephrin, epinine, tyramine, and some other amines and alkaloids, on normal bronchioles, is constriction. This constriction is not parallel to, and usually outlasts the accompanying vascular change. It is abolished by urethane. It is not attributable to secretion. It is, therefore, contraction of bronchiolar muscle. After bronchiolar constriction by certain other drugs, adrenalin, etc., produce bronchiolar dilatation. Among drugs after which the normal action of adrenalin, etc., is reversed, are curare, ergotoxin, apocodein, pilocarpin, muscarin and physostigmin. The tracheal muscle differs in its reactions from that of the bronchioles.

Kentucky Medical Journal, Bowling Green

October 15, XI, No. 21, pp. 889-924

60 Vaccine Treatment of Pertussis in Children. H. A. Davidson, Louisville.
61 Epidemic Anterior Poliomyelitis. P. F. Barbour, Louisville.
62 Iodids. J. W. Gilbert, Lawrenceburg.
63 Treatment of Typhoid Rib. N. Evans, Murray.
64 Diseased Domestic. E. D. Burnett, Anchorage.
65 Traumatic Displacement of Kidney. J. H. Peak, Louisville.
66 Emergency Surgery with Special Reference to Injuries to Back and Spine Occurring in Coal Mining Practice. B. E. Giannini, Straight Creek.
67 Vaccine Therapy. R. H. Davis, Louisville.
68 Intubation in Membranous Croup. W. Mason, Murray.
69 What Busy Practitioner Can Do To Educate Public in Prevention of Diseases. A. V. Menefee, Williamstown.
70 Auto-Intoxication. O. W. Brown, Lenoxburg.
71 Medical Ethics. J. L. Anderson, Manchester.
72 Non-Operative Management of Prostatic Hypertrophy. S. G. Zinke, Richmond.
73 Microscopic Host. T. J. Townsend, Owensboro.

Journal-Lancet, Minneapolis

October 15, XXXIII, No. 20, pp. 561-588

74 Clinical Data on Renal Lithiasis. W. F. Braasch, Rochester, Minn.
75 Membranous Sore Throat. S. A. Keller, Sioux Falls, S. D.
76 Refraction by General Practitioner. J. A. Hohf, Tripp, S. D.
77 Optometry Evil. G. Golseth, Jamestown, N. D.
78 Diagnosis of Gastric Ulcer. W. F. Bushnell, Elk Point, S. D.
79 Primary Inflammatory Tumors of Cecum. A. A. Law, Minneapolis.

Medical Record, New York

October 25, LXXXIV, No. 2242, pp. 737-782

80 Case of Pseudobulbar Paralysis. B. Oettinger, Denver.
81 Early Rhinoplasty. J. B. Stein, New York.
82 Mild Manifestations of Syringomyelia. C. B. Craig, New York.
83 Roentgenoscopy of Diseases of Stomach. I. H. Levy, Syracuse, N. Y.
84 *Frequency of Amentia as Related to Sex. L. S. Hollingworth, New York.
85 Tonsil-Vestigial Respiratory Organ. J. A. Hagemann, Pittsburgh.

84. **Frequency of Amentia.**—Hollingworth suggests that the tonsils are probably vestigial organs of respiration, a modified form of gills or branchiae, surviving from the piscine and amphibious periods of man's descent; yet not deciduous, as were the gills of most amphibians that permanently abandoned aquatic habitats.

Military Surgeon, Washington, D. C.

October, XXXIII, No. 4, pp. 299-399

86 Military Surgeon. W. C. Braisted, U. S. Navy.
87 What Would Be Ideal Relationship of Hospital Ship to Fleet in Time of Peace, from Standpoint of Fleet. G. A. Lung, U. S. Navy.
88 Relationship of Hospital Ship and Medical Transport to Fleet in Time of War. F. L. Pleadwell, U. S. Navy.
89 Organization of Medical Department of Division for Battle. D. N. Carpenter, U. S. Navy.
90 Preparation of Wounded for Transfer and Transport after Battle. C. M. Oman, U. S. Navy.
91 Organization for Transportation of Wounded after Battle in Battleship. D. C. Cather, U. S. Navy.
92 Transportation of Wounded from Ship of War to Sanitary Base. E. M. Blackwell, U. S. Navy.
93 Mental Hygiene. E. W. Lazell, U. S. Army.
94 Cooperation Between Federal, Municipal and Naval Authorities in Prevention of Venereal Disease. G. B. Trible, U. S. Navy.

New York Medical Journal

October 25, XCVIII, No. 17, pp. 797-844

95 Legal Responsibility of Surgeon and Practitioner which Use of Roentgen-Ray Involves. E. Eliot, New York.
96 Percussion of Pulmonary Apices. M. Fishberg, New York.
97 Oral Sepsis and Its Possible Dangers. R. C. Rosenberger, Philadelphia.
98 Clinical Report on Value of Turtle Tuberculin in Treatment of Tuberculosis. W. J. Beattie, Littleton, N. H., and E. E. Myers, New York.
99 Testing Urine for Indican. J. Rosenbloom, Pittsburgh.
100 *Intravenous Injections of Theobromin Sodium Salicylate. W. Neuhof, New York.
101 Skin Diseases in Schoolchildren. E. Pisko, New York.
102 Differential Diagnosis of Some Ordinary Eye Diseases. F. Krauss, Philadelphia.
103 Plea for More Intensive Mercurial Medication in Syphilis. M. Zigler, New York.
104 Treatment of Fractures near Wrist Joint with Special Reference to Colles' Fracture. A. O. Wilensky, New York.

100. **Theobromin Sodium Salicylate.**—The object of Neuhof's communication is to show the practicability of intravenous theobromin sodium salicylate injections. The solution is readily prepared and sterilized, and when properly given produces no reaction. While 20 c.c. of a 5 per cent. solution have been found a convenient standard, it may be modified to suit individual requirements. It seems particularly indicated in uremia, in the anuria of cardiovascular renal diseases, and in some types of primary renal disease when internal administration is impracticable or impossible and quick diuretic action is necessary. It is further suggested that these injections may be of benefit in some types of uremia accompanying eclampsia; in conjunction with other forms of treatment, it may help in starting diuresis.

Northwest Medicine, Seattle, Wash.

October, V, No. 10, pp. 269-298

105 Types of Pulmonary Tuberculosis with Exclusive Occurrence of Much Granules in Sputum. R. C. Matson, Portland, Ore.
106 Operative Midwifery in General Practice. C. N. Suttner, Walla Walla, Wash.
107 Present Day Classification of Nephritis with Notes on Therapeutic Applications. F. Epplen, Spokane, Wash.
108 Clean Milk Problem. E. W. Janes, Tacoma, Wash.
109 Operative Treatment of Paralysis in Children. F. J. Fassett, Seattle, Wash.

Ohio State Medical Journal, Columbus

October, IX, No. 10, pp. 463-514

110 Medical Education in Hygiene and Public Health. E. F. McCampbell, Columbus.
111 Differential Diagnosis Between Gastric and Duodenal Ulcer, Chronic Appendicitis and Gall-Bladder Disease. C. A. Hamann, Cleveland.
112 Fatalities of Delay in Diagnosis and Treatment of Rectal Diseases. G. B. Evans, Dayton.
113 Treatment of Pleurisy with Effusion. W. A. Dickey, Toledo.
114 Technic for Diagnosis of Position When Occiput Presents. A. Rogers, Columbus.
115 Eight Hundred Tonsillectomies with Special Tonsil Knife. D. F. Reeder, Ancon, C. Z., and H. V. Dutrow, Dayton, O.

United States Naval Medical Bulletin, Washington, D. C.

October, VII, No. 4, pp. 489-679

116 Some Aspects of Prophylaxis of Typhoid by Injection of Killed Cultures. C. S. Butler, U. S. Navy.
117 William Longshaw, Jr., Assistant Surgeon, United States Navy (1839-1865). J. D. Gatewood, U. S. Navy.
118 Intraperitoneal Rupture of Bladder: Report of Case. R. B. Williams, U. S. Navy.
119 Nitrous Oxid-Oxygen Anesthesia. H. F. Strine, U. S. Navy.
120 Leukemia, with Report of Case of Lymphatic Type. H. L. Kelley, U. S. Navy.
121 Hospital Corps. G. A. Riker, U. S. Navy:
122 Veru Montanitis. H. W. Cole, U. S. Navy.
123 Tests for Color Blindness. G. B. Trible, U. S. Navy.
124 Medical Work in American Samoa. E. U. Reed, U. S. Navy.
125 *Case of Recurrent Dislocation of Shoulder. R. B. Williams, U. S. Navy.
126 Medical Department in Warfare. A. W. Dunbar, U. S. Navy.
127 *Iodized Gauze for First-Aid Packet. F. E. McCullough, U. S. Navy.
128 Incinerator. A. Farenholt, U. S. Navy.

125. **Recurrent Dislocation of Shoulder.**—The technic employed by Williams is described as follows: Incision 4½ inches in length from tip of the coracoid along the inner border of the cephalic vein, exposing the vein. The fibers of the deltoid were separated by blunt dissection and the insertion of the pectoralis major exposed. The upper two-thirds of the fibers of this muscle were divided on a director and the arm was rotated outward, exposing the flat tendon of the sub-

scapularis tightly stretched over the head of the bone. The upper half or more of the tendon of insertion of this muscle was similarly divided, thus bringing into view the anterior and inferior portions of the capsule. The capsule was incised in a vertical direction for a distance of 1½ inches. The tips of two fingers could be easily inserted between the lower portions of the capsule and the articular surfaces. The margins of the incision were overlapped for a distance of three-quarters of an inch by four mattress sutures of chromic catgut in the same manner that the aponeurosis is overlapped in operating on ventral hernia. The free margin of the incised capsule was shipped down to the outer surface of the capsule by a continuous chromic suture. The divided tendons of the subscapularis and pectoralis major were next carefully united with interrupted chromic gut stitches. Several chromic gut stitches were used to bring together the separated fibers of the deltoid; the skin wound was closed with interrupted sutures. Recovery was uneventful, healing occurring by primary union. Passive motion was begun on the fifth day. The patient was discharged to duty nine weeks after the operation.

127. **Iodized Gauze for First-Aid Packet.**—The gauze used in the first-aid packet of the U. S. navy has been treated with the following: iodin, 10 parts; potassium iodid, 15 parts; water (a sufficient quantity to dissolve). The gauze is colored a deep brown and thoroughly impregnated with iodin. It answers the double purpose of being a confusion color, which is not to be detected from the surrounding terrain, and of supplying an iodin dressing to the surface applied, and in that iodin is conceded to be the most efficient topical antiseptic. The gauze, thus iodized, not only insures the military purpose of invisibility but furnishes an ideal method for preventing sepsis.

West Virginia Medical Journal, Wheeling

October, VIII, No. 4, pp. 109-142

129 Early Ectopic Gestation. S. L. Jepson, Wheeling.
130 Case of Tubal Pregnancy. S. B. Lawson, Logan.
131 Conservation of Natural Resources. A. A. Shawkey, Charleston.
132 Glaucoma. E. E. Gibbons, Baltimore.
133 Case of Intracranial Tumor, Possibly Cerebellar. M. Mendeloff, Charleston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

August 30, XXXIV, No. 9, pp. 191-214

1 Movable Kidney. C. MacLaurin.
2 Recent Cases of Small-Pox. F. S. Hone.
3 Method of Enucleation of Tonsils and Removal of Adenoids. H. Bullock.

September 6, No. 10, pp. 215-238

4 Tuberculosis and Diabetes. G. E. Rennie.
5 Case of Splenic Leukemia Treated with Benzol. J. Corbin.
6 Benzol in Leukemia. C. T. de Crespigny.

September 13, No. 11, pp. 239-260

7 Therapeutic Value of Secondary Rays Produced from Metal by Action of Roentgen Rays. E. J. Roberts.
8 Pituitrin in Labor. E. A. Officer.
9 Surgical Anatomy of Forearm and Hand. A. L. Buchanan.

September 20, No. 12, pp. 261-282

10 Case of Congenital Club Hand, Congenital Partial Radius Defect, etc., in Adult. H. Rischbieth.
11 Observations on Urinary Calculi. J. P. Hastings.

British Medical Journal, London

October 11, II, No. 2754, pp. 897-972

12 Action of Strophanthin on Cardiac Tissue. A. J. Clark.
13 Maximal and Minimal Blood-Pressures and Their Significance. J. F. H. Daly.
14 *Idioventricular Rhythm. C. A. Robinson.
15 Fatal Purpura Following Scarlet Fever. J. Biernacki and A. L. Dykes.
16 Acute Facial Dermatitis Produced by Hair Dye. H. C. Semon.
17 *Genesis of Cancer. A. Turnbull.
18 Electrargol in Small-Pox. R. Denman.
19 Secondary Roentgen-Ray Radiations in Medicine. C. G. Barkla.
20 Radium and Radio-Therapeutics, Chiefly in Malignant Growths. A. P. Gould and R. Abbe.
21 Indications for Roentgenization Before, During and After Operation for Cancer. F. H. Johnson.
22 Technic of Roentgenotherapy of Cancer. F. Fowler.
23 Cardiospasm. A. C. Jordan.
24 Collargol Injections in Diagnosis of Diseases of Urinary Tract. W. I. Bruce.
25 Roentgenotherapy of Uterine Fibroid. A. F. Savill.
26 Secondary Roentgen Rays in Connection with Ionization. J. D. Harris.
27 Roentgenotherapy of Gynecologic Cases at Freiburg. C. J. Gauss.
28 Roentgenotherapy of Ringworm. G. B. Batten.
29 Suggested Standards in Roentgenoscopy of Alimentary Canal. A. F. Hertz.
30 Present Position of Roentgenoscopy of Pulmonary Tuberculosis. E. R. Morton.
31 Electro-Therapeutics in Neuron Lesions. C. F. Bailey.
32 Value of Condenser Discharges in Treatment. H. L. Jones.
33 Use of Condensers in Electrical Testing and Some Results. E. P. Cumberbatch.
34 Pathologic Blood-Pressure and Its Treatment by Modern Electro Therapeutic Measures. F. H. Humphris.
35 Treatment of Corns and Warts by Ionization. H. L. Jones.

14. **Idioventricular Rhythm.**—The conclusions arrived at by Robinson from a study of polygraphic tracings are that the infrequency of the pulse-rate is due primarily to a relative delay in the rate of stimulus formation at the sinus. This, together with an extrasystolic contraction of the auricle not followed by a ventricular response, causes the period before effective stimulation of the ventricle coming from the normal situation to be so long that the ventricle escapes, and in turn produces auricular contraction by a retrograde stimulation, thus producing the establishment of the idioventricular rhythm.

17. **Genesis of Cancer.**—The internal transformation changes of tissue were made the subject of study by Turnbull. His results are based on 25,000 measurements and over 300 calculations. They establish what he believes to be a principle of the first magnitude in the cancer problem, namely: There exists a relation between the strain to which a tissue is exposed and the extent to which that tissue varies. This principle he thinks offers a rational explanation of the transformation of normal into cancerous tissue without it being necessary to think of any external cause for cancer whatsoever, for example, parasites. The above results indicate that cancer is explainable as an internal, compensatory and essentially physiologic tissue-change. If the above results be true then cancer is not infectious.

Journal of Tropical Medicine and Hygiene, London

October 1, XVI, No. 19, pp. 297-312

36 Clinical Study of Malarial Fever in Panama. J. P. Bates.
37 Acquisition of Acid-Fast Properties by Filamentary Organism Cultivated from Animal Injected with Culture of Hansen's "Bacillus." J. M. Santamaria.
38 Fibrosarcoma in Native of Central Africa. A. Y. Massey.
39 Case of Trypanosomiasis Found on Hills, Twenty-Two Miles North of Serenje, in North Rhodesia. A. Brown.
40 Treatment of Human Trypanosomiasis by Salvarsan and Neosalvarsan. A. Kopke.

Lancet, London

October 11, II, No. 4702, pp. 1041-1102

41 *Fever in Pulmonary Tuberculosis: Its Significance and Therapeutic Indications. F. J. Wethered.
42 Examinations, Examiners and Examinees. W. Osler.
43 Present Problems Relating to Origin of Modern Races. A. Keith.
44 Problems of University Medical Education in London. W. Hunter.
45 Relation of Medical Knowledge to War Conditions. B. M. Skinner.
46 Hard and Soft Water. J. C. Thresh.
47 *Arteriovenous Anastomosis for Impending Gangrene. C. Goodman.
48 Formation of Artificial Vagina by Transplantation of Portion of Ileum (Baldwin's Operation). V. Bonney.
49 Use of Atropin Tablets for Determination of Refraction in Children. F. Moxon.
50 Use of Gelatin in Microscopic Technic. W. Johnson.

41. **Fever in Pulmonary Tuberculosis.**—Wethered emphasizes the fact that a rise of temperature in pulmonary tuberculosis, apart from accidental factors, may be considered an indication of activity, and that the most reliable means for reducing activity is rest. If, therefore, a patient who has been progressing favorably exhibits a rise of temperature, it must be accepted as a sign that rest must be insisted on. In other words, a patient suffering from pulmonary tuberculosis must live in accordance with his temperature chart. Any increase of cough and expectoration, headache, general

malaise, and so on, should always be regarded as calling for a record of the temperature for a few days, and should a rise be found the necessary measures should be taken in accordance with the general features of the case.

47. **Arteriovenous Anastomosis for Impending Gangrene.**—This operation was performed by Goodman in fifteen cases on the femoral vessels, and in this series he noted that the foot, previously cold and cadaverous in appearance, took on a feeling of warmth and a healthy pink color. The valves of the veins were only a temporary barrier to the course of the blood against the constant pounding of the heart. The pain due to ischemia was relieved shortly after the operation in all these cases. Strongly presumptive evidence of establishing a reversal of the circulation are the following facts: improvement of color, increase of warmth of the affected part, relief from pain, filling of the superficial veins, pulsation of veins below site of anastomosis, and return of part threatened with gangrene, or the actual seat of gangrene, to the normal.

Goodman had six successes. Several of these cases which promised success required amputation later, but even these had temporary relief from pain. He used the end-to-end method in all excepting one case, as he found it the simplest in execution and least likely to cause thrombosis. The operation should not be undertaken in the presence of sepsis, advanced or fulminating gangrene. The opportune time for intervention is in the pregangrenous stage before mortification has set in, in order to prevent its inception. In nonseptic gangrene the improved nutrition of the limb may be hoped for, permitting lower amputation than would otherwise be possible. The utmost delicacy and skill in minute detail must be observed in order to avoid the formation of thrombi; a most rigid asepsis is required throughout the operation, or the object of the operation will be defeated. Goodman made thirteen end-to-end anastomoses, one side-to-side, and in two of the cases an exposure of the vessel showed that an attempt to anastomose was not warranted on account of the advanced stage of thrombosis of the vessels. In two cases with gangrene a low amputation seemed to be satisfactory. Of the eight cases which were failures, including one death, one was a side-to-side anastomosis, and three of the remainder should not have been operated on on account of the presence of spreading gangrene.

Quarterly Journal of Medicine, London

October, VII, No. 25, pp. 1-91

51 *Auricular Flutter. W. T. Ritchie.
52 *Variations in Excretion of Endogenous Uric Acid Produced by Changes in Diet. G. Graham and E. P. Poulton.
53 Uricemia and Gout. I. W. Hall.
54 *Strychnin in Heart Failure. J. Parkinson and R. A. Rowlands.
55 *Type of Cerebral Maldevelopment (Forebrain Aplasia). G. A. Sutherland and H. Paterson.
56 *Sulphemoglobinemia. R. L. M. Wallis.

51. **Auricular Flutter.**—In one case examined by Ritchie, auricular flutter, at a rate usually of 250 to 276 per minute, persisted almost uninterruptedly for seven and a half years. The auricles meanwhile were not under vagus control. The flutter had then been replaced by an auricular tachysystole at a rate of 187 to 201 per minute, the form of the auricular deflexions had changed and the auricles were under vagus control. The pathologic changes are described in a heart that presented auricular flutter ten days before death. There were slight, diffuse inflammatory processes in the myocardium. Both nodes, the bundle and its branches, were slightly affected. The clinical and electrocardiographic features are described in a new case presenting transitions between auricular flutter, fibrillation and an intermediate form of auricular activity.

52. **Variations in Excretion of Endogenous Uric Acid.**—Graham and Poulton found that the consumption of a diet consisting of protein and fat of insufficient caloric value causes a fall in the endogenous uric acid output of between 30 and 50 per cent. If most of the fat in the previous diet is replaced by carbohydrate, there is no fall in the output of endogenous uric acid. A fall in the endogenous uric acid is also produced in two other conditions: (a) starvation during the first few days; (b) the consumption of a carbohydrate and fat diet. The following possible causes to account for the diminution in the uric acid output have been considered by the authors: (a) diminution in protein metabolism; (b) loss of body protein; (c) acidosis; (d) increased fat metabolism; (e) the interaction of protein and carbohydrate metabolism. Decided objections are raised to the first four hypotheses, but the last hypothesis seems to agree with the facts observed by other authors and Graham and Poulton.

54. **Strychnin in Heart Failure.**—An inquiry was undertaken by Parkinson and Rowlands to obtain evidence as to its immediate effect when given subcutaneously in cases of severe heart failure. The blood-pressure, rate and regularity of pulse, rate of respiration and general condition were recorded for an hour after each injection. The action of repeated doses was not investigated. Fifty patients were examined on admission and approved if they presented symptoms and signs of severe heart failure with or without valvular disease; those with heart failure secondary to pulmonary or renal disease were excluded, as were those with pyrexia. Most of the patients showed orthopnea and edema of the legs; all had shortness of breath. Strychnin sulphate in a dose of one-fifteenth of a grain (1/15 gr. = 0.0044 gm.) was given subcutaneously in each experiment. Before any observations were made the patient was allowed to remain quietly at rest in bed for three to eight hours, and during this period no drugs were administered. After the injection, records were made at the end of each period of five minutes during one hour. In cases with regular rhythm on no occasion was any increase in blood-pressure produced. The average rate of the pulse before injection was 107.6, and after injection 104.0, a slight decrease of 3.3 beats per minute. The authors ascribe this fall to the same factors as mentioned above under blood-pressure.

The rate of respiration was unaffected by strychnin. No change in amplitude of respiratory movement was noted. In four cases out of the twenty-five Cheyne-Stokes breathing was recorded on the respiratory tracing. Strychnin had no effect on this abnormal respiratory rhythm. In twenty-five cases with auricular fibrillation the average rate of the pulse decreased by only 3.4 beats per minute in the hour following the injection. None presented any change in irregularity. The average rate of respiration showed a decrease of not more than one or two respirations per minute alike after strychnin and after pure water. No change was observed in the amplitude of respiratory movements. In one case Cheyne-Stokes respiration was recorded; this remained unaffected by the injection. The authors conclude that strychnin has no effect which justifies its employment as a rapid cardiac stimulant in cases of heart failure.

55. **Type of Cerebral Maldevelopment.**—Sutherland and Paterson draw attention to a peculiar form of cerebral maldevelopment which produces a characteristic series of symptoms during life and which presents after death definite pathologic changes. Their experience is limited to two cases. Both patients were females. Both appeared to be healthy at birth and at the end of the second week developed "convulsions" or twitching movements. No evidence of syphilis or tuberculosis was discovered either during life or after death. No external evidences of maldevelopment were seen. The heads were rather small, but there was nothing suggestive of a condition of microcephaly. The fontanelle did not pulsate and was not bulging.

What was very striking was the curiously apathetic condition in which the child lay, never smiling or looking about, or taking notice of anything. The same placid look of calm indifference was always maintained. No gleam of intelligence was ever present, and no evidence that the child could see or hear.

An examination of the eyes showed nystagmus in both cases, but no changes in the fundi. Fits of crying occurred at irregular intervals and would sometimes last for hours. The cry was more like the yapping of a dog, regular, monotonous, weird, expressionless and invariably of the same nature

in the individual patient. The character of the crying suggested an automatic discharge of energy at regular intervals. At times there was an abortive cry, that is, the face was screwed up into the expression of crying but no sound was elicited. At rarer intervals screaming of a loud and piercing character was present, but without any sign of pain or distress, and without any obvious cause. Yawning was a marked feature throughout and of frequent occurrence. Slowly opening its mouth the infant threw its head back, then stretched its limbs, then flexed them—in short, the whole process of a leisurely yawn was gone through. Sucking and swallowing were seriously interfered with, and this difficulty appeared to increase from week to week. The respiration was markedly altered. Tachypnea lasting for hours or days was present in both cases. The breathing was always of the so-called medullary type, that is, superficial, almost purely abdominal, and without any sign of distress. There was no evidence of any pulmonary disease. The breathing was often cyclic, spells of active breathing lasting for from nine to thirty-seven seconds, being followed by periods of apnea, lasting for from four to twelve seconds. The longer the spell of breathing, the longer was the apneic period. A long period of respiration usually showed a uniform curve, while the shorter spells were marked by great variation in the depth and rate of breathing.

Attacks of tachycardia were frequently noted in both patients, the cardiac rate rising to 200 beats per minute. The sounds of the heart at those times were of fetal character, but no evidence of cardiac disease was detected and no signs of cardiac weakness were present. Clinically, the cardiac condition was very similar to that seen in paroxysmal tachycardia. The attacks of tachycardia and tachypnea were sometimes associated and sometimes not. Pyrexial disturbance was a marked feature in one case, less marked in the other. The temperature would run up suddenly to 104 or 105 F., the skin would become quite red, and profuse sweating usually occurred. No cause for these attacks could be found on physicial examination. Sensation seemed to be entirely absent. Twitching of the limbs, which was the first symptom noted in both cases, was a marked feature throughout. Clonic spasms and tonic spasms were present, sometimes continuous for days and sometimes absent for days, but always tending to become more pronounced and more persistent in the form of rigidity. Twitching was less marked in the face than in the limbs. The upper extremities tended to become flexed at the elbows, while the lower limbs were extended at the knees. The feet and hands were often fixed in the position of tetany. Tapping the skull with the finger would sometimes induce immediately a clonic and then a tonic spasm of the trunk and extremities. Opisthotonos was an early and progressive symptom, although at times it passed off altogether, and at other times was very pronounced. Even more striking, because of its rarity in infancy, was a condition of pleurosthotonos which was present in both cases. At the necropsy the brain was found extremely ill developed (or atrophied) as regards the cerebral lobes, with the exception of the extreme hinder portions of the posterior lobes, which appeared to be normal. The cerebellum, the medulla, the pons and the basal ganglia presented a normal appearance. The lateral ventricles were not dilated, the foramen of Monro was patent and normal, the third and fourth ventricles were not enlarged, and the patency of the *iter* was established.

56. **Sulphemoglobinemia.**—Five cases of sulphemoglobinemia examined by Wallis all showed the characteristic features of this disease, viz., marked cyanosis, weakness, headache, and constipation without signs of any lesion in the heart and lungs. The sulphemoglobin partially replaces the oxyhemoglobin of the blood and is present in the red blood-corpuscles and not in the serum. The serum of all the patients contained a strong reducing substance, possibly of the nature of a hydroxylamin derivative capable of producing reduction of the oxyhemoglobin. This, Wallis says, is an essential and primary stage in the production of sulphemoglobin. A nitroso-bacillus occurred in the buccal cavity of these patients, and from its biochemical characters appeared to be capable of producing such a reducing substance. The sulphuretted hydrogen present in the body was in sufficient quantity to form sulphemoglobin under these conditions.

Annales de Gynécologie et d'Obstétrique, Paris

September, XL, No. 9, pp. 497-560

57 *Uterine Cancer. (Valeur comparée des procédés opératoires du cancer de l'utérus et des résultats obtenus.) D. De Ott. (Le cancer de l'utérus "col et corps.") E. Wertheim.

57. **Cancer of the Uterus.**—These two articles were presented by request at the recent international medical congress. Ott is known as the apostle of extensive vaginal and Wertheim of extensive abdominal hysterectomy for cancer. The former states that while his percentage of permanent recoveries is a little smaller than with the abdominal technic, yet the number of persons actually cured is higher than with the abdominal technic as none was damaged in any way by the vaginal operation, while the operative injuries and by-effects from the abdominal operation lead comparatively frequently to fatal complications. Ott grants that once past the breakers, a larger proportion of the individuals left are cured, but he claims that by avoiding the breakers a bigger crowd of patients start on the road to recovery, and the percentages are thus not comparable between the two groups. His total mortality in 345 vaginal hysterectomies for uterine cancer was 1.7. Of the 246 patients whose fate is known after five years, 34.1 per cent. seem to be permanently cured. There is thus a proportion of seventeen permanent cures to one fatality (17 to 1). He tabulates along with his figures Wertheim's published statistics in 500 abdominal cases; the immediate mortality was 19.4 per cent.; of the 180 patients whose fate is known after five years, 57.6 per cent. seem to be permanently cured. The proportion of permanent cures to one fatality is, however, only as 1.7 to 1.

Wertheim's article brings his statistics down to date; abdominal operations for cancer of the cervix in 714 cases; primary mortality 18.6 per cent.; the permanently cured after five years, 186 or 42.5 per cent. Among this group cured for five years are 14 patients whose lymph-nodes showed malignant involvement at the time of the operation. He had postoperative necrosis of the ureter in 6 per cent. of the total 714 cases. He found only 50 per cent. operable of the 1,501 cases encountered during the fifteen years since he introduced his more extensive technic.

Ott sums up his comparison of the end-results with the two methods in the statement: "With the abdominal technic, one gets one and a half times more chance of permanent recovery after five years, but one runs eleven times more danger of dying during or immediately after the operation." (Ott's vaginal operation is done with special endoscopes, some of which were illustrated in THE JOURNAL, 1902, xxxix, 458. He does not describe his technic in this article.)

Annales de Médecine et Chirurgie Infantiles, Paris

October 1, XVII, No. 19, pp. 633-668

58 *Familial Purpura; Three Cases. M. Cousin.
59 *Case of Meningitis with Serotherapy. (Méningite cérébro-spinale à méningocoques. Accidents sériques.—Guérison.) Giraud and Marnay.
60 *Early Operative Treatment of Congenital Spastic Paralysis. P. Redard.

58. **Familial Purpura.**—Cousin states that a child of 10 developed purpura; three years later his cousin, of about the same age, and four years later a more distant cousin. The family has a history of bleeding easily but no actual hemophilia is known. Cousin gave calcium chlorid to each of the children and the effect was promptly apparent. He ordered 1 gm. a day in a very dilute solution, and the extremely severe purpura in each case abated under its influence and there has been no return since. Two of the children are now sturdy youths, but the third is inclined to be delicate. The calcium chlorid acts on the cause of the purpura, and consequently it should be supplemented by symptomatic measures until its effect is apparent.

59. **Serotherapy in Meningitis.**—The meningitis in the case reported developed in three stages, first ten days of true men-

ingitis subsiding under serotherapy and followed by an interval of six days almost free from symptoms. Then the temperature ran up again, the symptoms of meningitis returned and the parotid gland swelled. Then 20 c.c. of the antimeningitis serum was injected, nine days after the first injection. No therapeutic effect followed but the next day diffuse urticaria developed, with pains in the joints and severe contractures resembling spastic paralysis. They persisted severe for several days and then gradually subsided so the child entered on his convalescence in seven days, a month after the first symptoms. This case is compared with other literature on the serotherapy of meningitis, and the disturbances that followed the serum are ascribed to direct irritation of the meninges by the serum; it is not necessary to invoke anaphylaxis. Disturbances of this kind have been noted even after a first injection; Sicard and Salin have reported cases in which the temperature ran up and headache, nausea and the Kernig sign followed on injection of saline or antimeningitis serum and necropsy revealed intense congestion of the pia with infiltration. The serum evidently induces an inflammatory reaction, but this generally escapes notice as it is masked by the more prominent symptoms of the original meningitis. The above syndrome cannot be ascribed to anaphylaxis, but it may be associated with manifestations of true anaphylaxis.

60. **Congenital Spastic Paralysis.**—Redard believes in operating early for Little's disease, between the ages of 3 and 5. He begins with a course of massage, baths and sedatives to prepare the little patient, and then strives (1) to do away with all peripheral sources of irritation; (2) to reduce the exaggerated reflex action, the muscular spasm, aiming to train the contracted muscles and their antagonists, and (3) to prevent and correct vicious attitudes and deformity. Redard's article was read at the recent International Medical Congress; it discusses the various operations required to meet the individual conditions and extols the advantage of means—such as vertical extension—to stretch the spinal cord and thus reduce its irritability. This alone may lead to notable reduction in the spasms, diminish the reflex excitability and permit better use of the muscles. He sometimes trains the child to walk while it is still held up in vertical extension. The Foerster operation is so severe it should be restricted to exceptional cases, but transplanting of muscles and tendons often proves surprisingly effectual. In the moderately serious cases improvement under operative and orthopedic measures is always notable and frequently it amounts to an absolute cure.

Archives Générales de Chirurgie, Paris

September, VII, No. 9, pp. 1025-1152

61 *Dislocation of the Thumb. (Les luxations trapézo-métacarpiennes.) J. Regnault.
62 Comparison of Hydrocele Fluid with the Blood Plasma. L. Delrez.
63 Gastro-Enterostomy with Retracted Mesocolon. (Gastro-entérostomie postérieure anté-colique.) P. Mauclaire.

61. **Dislocation of the Joint Between the Trapezium and the Metacarpal Bone of Thumb.**—Regnault gives the history of this dislocation as presented in the literature and describes a plaster mitten devised to correct it. In twenty-two cases he has compiled, including two from his own experience, the dislocation was backward and incomplete and there was no fracture; in fourteen cases there was complete dislocation without fracture; eight cases in which the luxation was complicated with a Bennett fracture and other cases bring the total to fifty-three. Few of the patients have been seen since, so that the question as to facile recurrence of the dislocation is still undecided. To ward off recurrence it is wise to keep up treatment a long time and warn the patient of the possibility of recurrence.

Archives Internationales de Chirurgie, Ghent

VI, No. 2, pp. 135-252. Last indexed May 10, p. 1497

64 Operation for Cancer of the Larynx. (Carcinoma della laringe; atrofia della glandola tiroide. Laringectomia e plastica esofagea.) G. Perez. (Pavia, Italy.)
65 The Parathyroid Glands with Ordinary and Exophthalmic Goiter. T. Iversen. To be concluded.
66 Tuberculosis of the Nipple. F. Putzu. Commenced in V, No. 6.

Archives de Médecine des Enfants, Paris

October, XVI, No. 10, pp. 721-800

67 *Kala-Azar in Italy; 102 Cases. (L'anémie par leishmania.) R. Jemma.
68 Megacolon. (Maladie de Hirschsprung.) A. Mamrot.

67. **Kala-Azar in Italy.**—Jemma states that the disease was described in Italy as early as 1880, under the name of infectious infantile pseudoleukemia or infectious splenic anemia. It is the work of Leishman's parasite, and it attacks mostly young children. The younger the child the more rapid the course; recovery is very rare. Only three of ninety of his patients recovered, but in six the outcome has not been determined. He adds that the recovery was spontaneous in the three cases with a favorable outcome and can scarcely be credited to the iron, arsenic and roentgenotherapy applied. Vaccine therapy proved useless, and nothing can be hoped from splenectomy as the parasites are not localized exclusively in the spleen.

Journal de Médecine de Bordeaux

October 5, LXXXIV, No. 40, pp. 637-652

69 *Jaundice Following Abortion. Andérodias and Drouin.

69. **Jaundice Following Abortion.**—The first patient had puerperal septicemia favored by a recent influenzal attack. The jaundice was accompanied by slight rigidity of the back of the neck and Kernig sign, exaggerated reflexes, epistaxis, mild diarrhea and phlebitis of the left leg, but recovery gradually followed. The other patient was a II-para of 24, who induced the abortion herself with an ivory catheter through which she injected a little hydrant water into the uterus. The next day she had chills, vomited, and noticed that her skin had "turned all yellow." There were also severe abdominal pains and diarrhea. The uterus was curetted and an abscess of fixation was applied. Intense pruritus, hemorrhages from nose and vagina, hemoglobinuria, delirium and other symptoms of uremia grew gradually worse, the patient dying the seventh day, persistently refusing to permit an operation on the kidney. Necropsy showed necrotic nephritis and also patches of inflammation in the liver. In the first case the low urobilin content in the urine had indicated that the prognosis was not so grave as the various symptoms had seemed to suggest, and this assumption was confirmed by the prompt recovery.

Lyon Médical, Lyons

September 28, XLV, No. 39, pp. 489-528

70 Chronology of Dentition. A. Pont and P. Trillat.

October 5, No. 40, pp. 529-564

71 Natural and Experimental Parthenogenesis. P. Aubert.

Presse Médicale, Paris

October 1, XXI, No. 80, pp. 793-800

72 Sporothricosis Simulating Tuberculous Process in Bone or Lung. C. Laurent.
73 Functioning of the Ductless Glands in the Fetus. (Importance des fonctions endocrines pendant la vie embryonnaire et foetale et sur leur rôle dans l'organogenèse.) C. J. Parhon.

Semaine Médicale, Paris

October 1, XXXIII, No. 40, pp. 469-480

74 *Diagnosis of Effusion in the Pericardium, and Puncture through the Epigastrium. A. B. Marfan.

October 8, No. 41, pp. 481-492

75 Venom Activation and its Diagnostic Significance. (Réaction d'activation du venin du cobra; sa fréquence au cours des maladies mentales; sa valeur prognostique chez les paralytiques généraux et les déments précoces.) M. Klippel and M. P. Weil.

74. **Diagnosis of Effusion in the Pericardium.**—Marfan remarks that none of the signs of effusion in the pericardium are absolutely reliable. The most instructive are the enlargement of the area of dulness over the heart and its change from a triangular to an ovoid or dome shape and the absence of pulsation seen at the edges; pulsus paradoxus; difficulty in swallowing; the pseudopleuritic findings at the left base, pronounced as the patient stands, diminishing in the knee-chest position, and the crowding down of the liver. A positive differential diagnosis is possible only by puncture. With the usual technics, puncture is inconvenient and dangerous, but it is very simple and easy and leaves the pleura and peritoneum

intact if the needle (a 6 or 8 cm. long lumbar-puncture needle) is introduced just below and close to the xiphoid appendix on the median line. The tip is slanted upward and kept as close to the rear of the xiphoid appendix and the sternum as possible, the handle pressed down on the abdomen more and more as the needle is pushed in, the needle thus pushed along the bone as if to shave it. The tip enters the pericardium at a depth of about 4 cm. in children under 5, and 6 cm. in adults. The needle traverses the cellular fat tissue between the points of attachment of the diaphragm to the sternum, not touching the muscle, and enters the pericardium at the lowest point, where all the fluid can be most readily siphoned out. This epigastric puncture of the pericardium has been done since 1911 twenty-six times on eight patients, and always with the best results. In case of tuberculous pericarditis with effusion, pericardotomy may occasionally be preferable, and it is always better when the effusion is purulent unless the process is tuberculous; in this case repeated puncture may be better as pleurotomy in purulent tuberculous pleurisy generally proves disastrous. With all other effusions in the pericardium, the epigastric puncture, repeated as needed, is the logical and harmless treatment. He reports a case of purulent tuberculous pleurisy in which complete recovery followed nineteen simple punctures.

Archiv für klinische Chirurgie, Berlin

CCII, No. 2, pp. 309-562. Last indexed Oct. 11, p. 1410

76 *Operative Treatment of Brain and Spinal Cord Tumors; 183 Cases. (Hirn- und Rückenmarkstumoren.) A. v. Eiselsberg and E. Ranzi. (Gehirngeschwülste.) P. Babitzki.
77 Experimental Suppurative Arthritis. (Experimentelle Untersuchungen über eitrige Gelenkentzündungen.) G. Magnus.
78 *Omentum Flaps in Hemostasis in Operations on the Liver. (Blutstillung bei Leberwunden durch gestielte und freie Netzlappen.) P. Jacquin.
79 Nail Extension. (Zur Mechanik der Nagelextension.) T. Christen.
80 Foreign-Body Cysts. (Fremdkörpercysten.) E. E. Pribram.
81 Incarcerated Intraparietal Inguinal Hernia. (Hernia dystopica inguino-inguinalis incarcerata.) Esau.

76. Brain and Spinal Cord Tumors.—Of the 168 patients operated on under the diagnosis of "brain tumor" at von Eiselsberg's clinic, the lesion was in the cerebrum in seventy-five; in the hypophysis in sixteen; in the cerebellum in thirty-two and in the pontine angle in seventeen, while in twenty-eight cases the intervention was restricted to making a safety valve without ascertaining the exact site of the tumor. Forty operations were done on the spine, for tumors in seventeen cases, fracture of vertebrae in six, for spondylitis in two, and for spastic paralysis in fifteen. The details of all the cases are given, with nineteen diagrams; the article fills 159 pages. The site of the tumor had been correctly located in forty-six of fifty-seven cases of brain tumor. In one case a tumor was located but operation revealed multiple gliomas; the absence of the abdominal wall reflexes in this case might have warned that the trouble was of a more diffuse nature. In another case the local tenderness to tapping led to assumption of a compressing process in the angular gyrus, but the tumor was found at the junction of the hemispheres. In another, local tenderness indicated a single lesion but a bilateral affection was indicated by the tendency to fall over backward and to the left and by incontinence in respect to both urine and feces. A process in the central convolution was the diagnosis in one case; as it was exposed the fluid spurted. The trouble was attributed to circumscribed serous meningitis and no further search was made. Necropsy revealed a fibroma in the region of the acoustic nerve which could easily have been shelled out; the coincidence of the two processes was probably merely casual. A glioma in the optic thalamus had caused absolutely no symptoms of the quadrigeminal area, only symptoms suggesting compression in the inferior cranial fossa, ataxia, absence of the corneal reflex, diminished palate reflex, hemiparesis and vomiting of coffee-ground masses. Among the mistakes of the surgeon were the overlooking of a tumor and failure to recognize a diffuse glioma. This latter mistake teaches the necessity for making frozen sections during the operation when the findings are dubious. Choked disk did not accompany the tumor in the brain in every instance. If the cochlear and the vestibular nerves are dead to stimuli, this is generally pathognomonic of a tumor in the cerebellopontine angle as a rule, but this sign failed in one of the cases reported. If more attention had been paid to the ear findings in the diagnosis of abnormally high intracranial pressure and in local diagnosis, some of the mistakes might have been avoided, especially with tumors supposed to be in the posterior cranial fossa.

The patients are prepared with hexamethylenamin and, if the blood shows low coagulating power, calcium lactate is given for a few days. The tendency is more and more to operate at two sittings and to turn back larger flaps, sacrificing at need patches of the dura as large as a man's palm, closing the gap with fascia lata from the thigh. No draining or tamponing. Sixteen of the patients succumbed to postoperative meningitis; it might possibly have been avoided in some of the cases if fascia substitution had been applied. It appears from the tables that twenty-seven of the patients were cured and twenty-five improved in the intracranial operations, and three cured and sixteen improved in the operations on the spinal cord.

78. Omentum Flaps for Arresting Hemorrhage from the Liver.—Jacquin states that a pedunculated flap of omentum is easily obtained and it proved absolutely effectual in dogs after resection of large portions of the liver.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XVIII, No. 3, pp. 307-446. Last indexed July 5, p. 69

82 *Malpractice in Connection with Abortion. (Der fahrlässige Abort.) A. Hegar.
83 Hernia of the Female Genital Organs. (Die Leistenhernien der weiblichen Geschlechtsorgane. Hernien-Adnexitiden.) C. Daniel.
84 Histology of Carcinoma of Uterine Cervix. B. Liegner.
85 *Course of Delivery with Occipital and Dorsal Meningoceles. M. Kröner.
86 *Urine Fistulas. K. Minakuchi.

82. Malpractice in Connection with Abortion.—The Niebergall case has attracted considerable attention abroad, and Hegar discusses the lessons to be learned therefrom. The case concluded with the conviction of Dr. Niebergall for having contributed to bring on abortion by using a catheter in examining the uterus of a young girl, only 15, who complained of abdominal pains and stated that menstruation had always been irregular and scanty. He made an examination, using a catheter; it entered for more than 7 cm. and he withdrew it and asked if pregnancy were possible. Five days later, in lifting a heavy bed, the girl was seized with pains and after four days aborted. Prof. von Herff accused Niebergall of criminal abortion as the head of the fetus showed an abrasion. Hegar expatiates on the serious consequences liable with abortion under all circumstances. Even with therapeutic laminaria abortion, Aschoff found pronounced catarrhal changes in the tubes in 55 per cent. of thirty-eight cases. In one instance pus was found in the abdominal cavity. The traces of such changes as these may have serious pathologic results earlier or later even when the abortion was induced in a hospital with scrupulous care. Hegar comments on the peculiar injury it is to a physician to come into conflict with the authorities at any time and for any cause. Even when proved absolutely guiltless, some smirch still clings to him, so he urges all to suspect always a possible pregnancy, even when it is wildly improbable, and never use the sound or catheter in examining a woman in the child-bearing age. The point on which he specially insists is that in the cases which might lead to criminal abortion, it really is immaterial to learn at once whether the woman is pregnant or not. Under all such circumstances waiting a little will do no harm. On the other hand, with malignant tumors and constitutional disease, the child's chance for viability is so small that the fetus need not be taken into account. At two months a pregnancy can be diagnosed with certainty by examination without instruments, although general anesthesia may sometimes be required for it. He scarcely ever found occasion to use a catheter in exploratory examination in the later decades of his practice, and his pupils avoid its use likewise.

85. **Meningocele Interfering with Delivery.**—Kröner reviews eighteen cases; in ten there had been deflexion presentation and this group he summarizes in detail. The data show that occipital meningoceles frequently entail frontal or face presentation; sometimes a transverse face rotates around the symphysis. With a meningocele at the back of the neck, presentation occurs generally as a deflexion presentation; delivery can occur only by a change to occipital presentation.

86. **Urine Fistulas.**—Minakuchi tabulates the details of forty-five cases from the Tübingen gynecologic clinic, including eleven in which the ureter was involved; the others were in the bladder. In fifteen cases the fistula was the result of obstetric injury; in twelve, of operative injury. The results of operative measures applied are also tabulated; 91.3 per cent. were cured and all were much improved of the bladder cases, but only three were cured in six ureter cases and one improved.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXVIII, No. 2, pp. 155-350. Last indexed Oct. 25, p. 1578

87 *Therapeutic Pneumothorax. (110 Fälle von künstlichem Pneumothorax und die daran gemachten Beobachtungen.) Zink.
88 *Graduated Tuberculin Skin Test in Prognosis. H. Kögel.
89 *Tuberculin Reaction in the Non-Tuberculous. (Ueber Organreaktionen mit Kochschem Alttuberkulin bei klinisch Nichttuberkulösen, mit bes. Berücksichtigung der asthenischen und rheumatischen Erkrankungen.) E. Sons.
90 Tubercle Bacilli in the Blood-Stream. Kachel.
91 Secondary Tuberculosis. E. Kahn.

87. **Therapeutic Pneumothorax.**—Zink writes from the Basel sanatorium at Davos to describe his experiences with artificial pneumothorax applied in 110 cases. He devotes thirty-seven pages to tabulation of the details, with diagrams of a number of the cases. He was able to accomplish the purpose of an effectual pneumothorax in eighty-one patients; the lung was completely compressed in thirty-five, while in forty-six, adhesions interfered to some extent. The adhesions generally stretched in time so that the therapeutic effect was finally attained. His experience teaches that non-tuberculous affections of the lung and bronchiectasia are not suited for this treatment. Emphysema and asthma are also contra-indications, as also non-tuberculous disease of the kidney or heart or other organs. With tuberculous intestinal disease, it is better not to attempt the pneumothorax treatment but laryngeal tuberculosis does not contra-indicate it, but may even heal under its influence. The field of pneumothorax treatment is in all chronic destructive, tuberculous processes with a tendency to fibrous degeneration and cavity formation, restricted to one lobe; also in all severe acute infiltrating and cheesy-pneumonic forms; also in the chronic infiltrating forms without much destruction if they are of a progressive character or show no tendency to retrogression under prolonged treatment by other means. With an isolated tuberculous process in the lower lobe, there is generally bronchiectasia which renders the outlook graver; the decision must be made from case to case. With severe and recurring hemoptysis, the pneumothorax may be justified even with tuberculous involvement of the other side, but otherwise active tuberculosis of the other side contra-indicates this method of treatment. Small stationary processes in the upper lobe of the other lung do not contra-indicate the method but when the lower lobe is diseased it is better to refrain.

88. **Graduated Tuberculin Test.**—Kögel extols the method of the graduated tuberculin test, according to Ellermann and Erlandsen's technic (described in THE JOURNAL, 1909, lii, 1634). The findings are particularly instructive for prognosis. An active response is generally a good sign, especially when the outlook is dubious. Repeated application of the graduated test also proves an instructive guide to treatment.

89. **The Organ Reaction to the Subcutaneous Tuberculin Test.**—Sons applies the term "organ reaction" rather than "local" or "local" as this term includes a system of organs, such as the joints, for instance. He emphasizes that the organ reaction is the most instructive, the most impressive and the most reliable sign of the localization of tuberculous disease. He has made a special study of the organ reaction in a number of nontuberculous abnormal conditions, especially asthenia universalis and rheumatic arthritis, as well as in the tuberculous. In seventeen cases of the asthenic syndrome, including anemia, chlorosis and neurasthenia, a pronounced febrile general reaction to the classic tuberculin test was obtained in twelve cases. In one case of acute articular rheumatism a strong reaction was obtained, general and at the point of injection, and also in nearly all the joints. In twelve cases of chronic rheumatic polyarthritis there was a general and febrile reaction in seven cases but weaker than in the preceding group; in the five other cases there was no general reaction but an unmistakable reaction in the joints. The test applied in five cases of neuralgia and one of spinal paralysis gave only one organ reaction, and positive reactions of all kinds in the paralytic. In nine tuberculous patients the reaction was negative in the old healed cases and there was no organ reaction in one case of apical tuberculosis without bacilli in the sputum. In six cases of other affections, not tuberculous, no organ reaction was obtained but a general reaction was evident in the three diabetics. These findings point to a possible tuberculous origin in many cases of asthenia universalis and of rheumatism, both acute and chronic.

Beiträge zur klinischen Chirurgie, Tübingen

August, LXXXVI, No. 1, pp. 1-263

92 *Firearm Wounds of the Heart; Two Cases. R. Häcker.
93 *Fascia Grafts. (Der gegenwärtige Stand und die nächsten Aussichten der autoplastischen, freien Fascien-Uebertragung.) M. Kirschner.
94 Absorption in the Pericardium. (Ueber Herzbeutelresorption.) Bolt and C. L. Gorinstein.
95 Diagnosis of Tumors in Stomach Wall. (Ueber primäre Myosarkome des Magens und die diagnostischen Schwierigkeiten der Magenwandtumoren.) R. Amelung.
96 Permanent Artificial Anus. (Anus praeternaturalis definitivus.) W. Carl.
97 Mesenteric Lipomas. A. Ebner.
98 Dermoid Cysts in the Mesentery. (Dermoidcyste zwischen den Blättern der Mesoappendix.) W. Willems.
99 *Operative Treatment of Hemoptysis. (Pleuropneumolysis thorakoplastica.) G. Lischkiewitsch.
100 Experimental Immobility of the Mediastinum and Its Therapeutic Import. (Bedeutung der Mediastinalstarre und ihre künstliche Erzeugung.) A. Menzel.

92. **Diagnosis of Injury of the Heart.**—Häcker says that if a firearm or stab-wound of the heart is not fatal at once, it permits calm examination of the patient and his being carried to the hospital if not too far away. He reports two cases instructive from the standpoint of diagnosis. In one a bullet in the skull complicated matters, and there was no sign of accumulation of blood in the pericardium pressing on the heart, and the outline of the heart was normal on roentgenoscopy. Several hours had elapsed before the man was first seen and yet the pulse was fairly regular and there was none of the cyanosis of the face usual with injury of the heart. Roentgenoscopy, however, showed that the bullet must have passed through the heart and necropsy confirmed this to have been the case but not a drop of blood had escaped. The bullet holes must have closed up at once by a valve-action. The bullet in the brain may have cooperated in slackening the action of the heart. In the second case the bullet was seen by roentgenoscopy inside the shadow of the heart and it moved with the heart beat, but it caused no symptoms and the patient was discharged in less than a month free from all disturbances. The bullet evidently must be in the pericardium and it did not enter the heart proper.

93. **Fascia Grafts.**—Kirschner has been one of the pioneers in autoplastic fascia operations, and he here gives a detailed and profusely illustrated account of his experiences. He emphasizes the superiority of the autograft technic and the superior advantages of fascia tissue for the purpose. The number of different ways in which strips or sheets of fascia tissue can be utilized in this way is surprising. The list includes the bridging of gaps in tendons by a tube of fascia sutured over the stumps, correction of paralysis of the eyelids and other muscles of the face, correction of flat-foot and habitual dislocation of the knee-joint and shoulder, fixation of kidneys and testicles and the use of the fascia rings to close the lumen of the intestine or correct prolapse of the rectum, and to serve as suture material. The list of uses to which sheets of fascia have been applied includes all kinds of hernia

operations, covering defects in the pleura, dura and in hollow organs, arresting hemorrhage in parenchymatous organs, in reenforcing the walls of vessels inclined to aneurysm, curing stiff joints, covering the stump after an amputation, and isolating a certain segment of a peripheral nerve. Kirschner states that no damage from the use of the fascia has been noticed in any instance, and in many cases it permitted operations absolutely impossible with any other material or method. He concludes his long article with the literature on the subject.

99. **Operative Treatment of Hemoptysis.**—Lischkiewitsch states that the intervals since up to five years in his twelve cases testify to the advantages in certain cases of rebellious hemoptysis of measures to compress the lung, and especially what he calls thoracoplastic pleuropneumolysis. None of the patients have had any hemorrhage from the lungs since, nor any of the eleven operated on since 1911.

Berliner klinische Wochenschrift

September 29, L, No. 39, pp. 1789-1836

101 *Duodenal Ulcer. C. A. Ewald.
102 *Symptoms of Adhesive Pericarditis. J. Tornai.
103 Application of Diathermia in Medicine. (Die medizinischen Anwendungen der Diathermie.) J. Bergonié. (Die wissenschaftlichen Grundlagen der Thermopenetration—Diathermie.) R. v. Zeynek.
104 Segregation of Venous Blood in Treatment of Circulatory Disturbances. (Die Phlebostase als physikalisches Heilmittel bei Kreislaufstörungen.) Lilienstein.
105 Electric Treatment of Tuberculosis of Nose, Throat and Larynx. (Behandlung der Nasen-, Rachen- und Kehlkopftuberkulose mit Hochfrequenzströmen.) Albanus.
106 Radiotherapy of Tumors. (Zur Strahlentherapie der Geschwülste.) B. Keetman.
107 Abnormal Psychic States in Epileptics. A. Münzer. Commenced in No. 38.
108 Luetin Skin Reaction in Syphilis. (Die Cutanreaktion von Noguchi bei Syphilis.) A. Fagiuoli and V. Fisichella.
109 Vaccine Therapy of Gonorrhea. K. Klause.
110 Serology of Gonorrhea. J. Finkelstein and T. Gerschun.
111 Chemical Composition of Nissl's Granules in the Ganglion Cells. M. A. Herwerden.
112 *Holmes and Semmelweis. P. Richter.

101. **Duodenal Ulcer.**—Ewald has encountered in the last three and a half years 532 cases of gastric and eighty-two of duodenal ulcer. He found blood in the stools the most constant sign of the latter; it was present in every case with one exception, but not always at the first examination. He declares that about 50 per cent. of all duodenal ulcers are amenable to medical treatment. On the other hand, operative treatment has its drawbacks; in one case the patient had a severe hemorrhage from the duodenal ulcer two months after it had been treated by gastro-enterostomy. He advised an operation only in eighteen of his eighty-two cases.

102. **Adhesive Pericarditis.**—Tornai calls attention to a symptom of adhesive pericarditis which he noticed very pronounced in a case described in detail. Just over the center of the left costal arch the wall sank in during inspiration over an area as large as one's hand. This circumscribed sinking in of the wall showed pronounced pulsation in this case, but in certain others the pulsation did not become evident until the patient drew a deep breath. Retraction of the chest wall is not pathognomonic, as pleuritic adhesions may cause this funnel-shape of the chest during inspiration. But when the retraction is thus circumscribed along the left costal arch, between the parasternal and anterior axilla lines, and it pulsates, he regards it as pathognomonic of adhesive pericarditis. The pulsation is synchronous with the carotid pulse. The best way to examine for retraction of the wall is to lay one hand on the lower part of the sternum, the other hand on the spine opposite; then as the patient takes a deep breath we can feel that the chest grows narrower between our hands, and we can perceive the characteristic pulsation, the systolic retraction, much more distinctly than with simple palpation. The preference of the edema for the upper part of the body is also characteristic. Still another sign is the paradoxic engorgement of the veins in the neck during inspiration; they may show plainer during inspiration than at other times. He thinks that tuberculosis is frequently involved in the production of adhesive pericarditis. Roentgenoscopy may show that the entire heart moves with the excursions of the diaphragm.

112. **Holmes and Semmelweis.**—Richter states that not only Holmes but others before Semmelweis had established the transmissibility of puerperal fever, but Semmelweis' great work lies in his insisting that puerperal fever is not a mysterious infection but is the work of every-day germs, and that he did not restrict himself to theorizing but put his conceptions into actual practice in the face of immense opposition.

Deutsche medizinische Wochenschrift, Berlin

October 2, XXXIX, No. 40, pp. 1921-1968

113 *Local Treatment of Contact Ulceration Following Intubation. J. v. Bokay.
114 *Nature of Diabetes. (Die Theorie der menschlichen Zuckerkrankheit.) E. Frank. (Der Natrium- und Kaliumstoffwechsel beim Diabetes mellitus.) S. Cohn.
115 Pharmacologic Research on Anesthetics. (Ueber Chloroform- und Aethernarkose, den Wert von Narkoseapparaten und die Unterstützung der Inhalationsnarkose durch Morphin, Skopolamin und einige Schlafmittel.) M. Kochmann.
116 Efficacy of Venesection plus Saline-Epinephrin Injection in a Case of Pneumonia. (Zur Behandlung der Herzschwäche bei Pneumonie mit Aderlass- und Kochsalzsuprareninlösung.) Lonhard.
117 Differential Diagnosis of Echinococcus Disease of the Lung. Guischard.
118 Chemistry of the Protoplasm and Cell Nucleus. O. Gans.

113. **Local Treatment of Contact Ulceration Following Intubation.**—Bokay states that 69.86 per cent. recovered of the 657 children with laryngeal diphtheria in his service since 1900 requiring intubation. He never did primary tracheotomy, but secondary tracheotomy became necessary in thirty-one cases. In fifty-one cases the throat ulcerated under the tube, but this healed in all under local treatment with alum applied on O'Dwyer's special tube made with a low retaining swell, coated with gelatin mixed with alum. The regular ebonite tube had been in place for from sixty to 294 hours in these cases, but the decubitus healed under the medicated tube in an average of 113 hours. In twenty-one other cases secondary tracheotomy became necessary in spite of the medicated tube and eleven of the group recovered. Bokay quotes Shurley's similar favorable experience with tubes coated with saturated alum (THE JOURNAL, 1912, lix, 1123), and mentions some German clinicians who have also used the medicated post-intubation tubes. If O'Dwyer's directions are scrupulously followed, he says, the results are invariably excellent.

114. **Nature of Diabetes.**—Frank writes from Minkowski's clinic to suggest that diabetes may be regarded as the pathology of glycogen. Cohn presents evidence to show that in diabetes the salt metabolism is abnormal in that there is a deficiency in sodium and an excess of potassium. The cause of this disturbance is defective functioning on the part of glands, the pancreas in particular, which are storers-up of potassium. Treatment should aim to restore the normal balance between these salts. This has been empirically done by giving oatmeal to diabetics. Oatmeal ash contains 4.30 per cent. sodium to 23.73 per cent. potassium, while wheat flour has respectively 0.76 and 34.43 per cent., and rye flour 1.75 and 38.44 per cent. The proportion of sodium to potassium in oatmeal is thus 1 to 5.5 while with wheat flour it is 1 to 45—a difference enough to explain the benefit derived from oatmeal in diabetes.

Cohn has previously presented evidence to the effect that an important contributing factor in gout is likewise a disturbance in the metabolism of sodium and potassium. In gout, however, it is the sodium proportion that is abnormally large and the potassium abnormally low—just the reverse of what he has found to be the case in diabetes. The organ in charge of the reserves of potassium, the pancreas, has become functionally incompetent, and potassium should be systematically administered. Among the facts he cites to sustain this theory is his finding that the blood in the pancreatic artery, thus entering the pancreas, contained an average of 0.108 per cent. sodium to 0.014 potassium; the blood in the pancreatic vein, on the other hand, just emerging from the pancreas, contained only 0.094 per cent. sodium to 0.027 per cent. potassium.

To the objection that the total proportion of the salt in the body is so small as to be negligible, he replies that recent

research has demonstrated the unsuspected importance of even minute proportions of certain cell constituents—even a single ion may in some circumstances decide the life or death of the cell. He enumerates as follows the points which speak in favor of the assumption that the diabetic is suffering from an excess of potassium and lack of sodium: (1) the frequent occurrence of free uric acid in the urine; (2) Rumpf and Dennstedt's finding of 0.2 sodium to 4.1 potassium in the ash of a diabetic's liver when normally both are about 1.5; similar findings were encountered in numbers of others; (3) accelerated ferment activity of the pancreas enzyme in contact with potassium salts; (4) the close resemblance between the symptoms of potassium poisoning and those of diabetes, especially the development of glycosuria after augmented intake of sodium; (5) increased potassium content of the urine in diabetics; (6) the resemblance between diabetic coma and the heart failure in potassium poisoning, and (7) Loewi's recent experiments with animals rendered diabetic showing that the diabetic heart muscle is extraordinarily sensitive to potassium. Cohn says in conclusion that his encouraging clinical experience with treatment on this basis has also confirmed the correctness of his premises.

Medizinische Klinik, Berlin

September 28, IX, No. 39, pp. 1575-1616

119 High Mortality of Appendicitis during Pregnancy and Its Causes. H. Füth.
120 Morphin and Cocain Addiction. A. Friedländer.
121 Treatment of Eclampsia. (Wert der "Therapie der mittleren Linie" bei der Behandlung der Eklampsie.) F. Engelmann.
122 Tuberkulosis and Appendicitis. J. Schnitzler. Commenced in No. 38.
123 Abnormal Ligaments Binding the Gall-Bladder; Three Cases. (Ueber anomale ligamentare Verbindungen der Gallenblase und ihre klinische und pathologische Bedeutung.) G. E. Konjetzny.
124 The Oil Test-Breakfast. (Das Oelprobefrühstück beim Icterus catarrhalis und Ulcus duodeni.) J. Matko. Commenced in No. 38.
125 Mortality of Sick Infants soon after Reaching the Hospital. (Zur Frage der Sterblichkeit kranker Säuglinge in den ersten Tagen des Anstaltsaufenthalts.) H. Putzig.
126 The Thymic-Lymphatic Constitution and the Shape of the Epiglottis. R. Landesberg. Commenced in No. 38.
127 Balneology with Heart Disturbance of Gastric Origin. (Der gastrokardiale Symptomenkomplex und seine Behandlung im Bade.) F. Meyer.
128 The Olfactometer. H. Günther.
129 *Insomnia. (Zur Therapie der Schlaflosigkeit.) E. Ebstein.
130 Determination of Ammonia in the Urine. (Zur Abkürzung der Ammoniakbestimmung im Urin nach Krüger-Reich-Schittenhelm.) A. Hahn.

129. **Insomnia.**—Ebstein reiterates that during the waking hours the supply of blood to the head is controlled by the erect position but on reclining, gravity aids in keeping the brain unusually well supplied with blood. This of course is liable to prevent sleep, and he thinks that measures may be devised which will counteract this to some extent. The blood in the arms—as the arms usually lie in bed—meets and combats the blood flowing from the brain, the stronger stream from the arms choking back the stream of blood coming from the brain. To counteract this, he advises a patient inclined to sleeplessness to grasp with his hands the head of the bed about eight inches above the pillow. If there is nothing there that can be grasped, a towel can be tied tight across which the hands can seize not lower than eight inches above the pillow. The body is slipped down in the bed so that the arms are thus held sloping upward above the head. By this means the blood-stream flowing down from the arms, with the velocity of the greater drop, helps to aspirate the blood from the brain instead of fighting against it. When the position becomes too wearisome, the wish to change the position must be combated at first. Only when the desire becomes imperative is it abandoned and the body turned with as little effort as possible into the attitude in which one habitually drops to sleep.

Münchener medizinische Wochenschrift

September 30, LX, No. 39, pp. 2153-2208

131 Tuberculosis at Different Ages. K. E. Ranke.
132 Hyperglycemia Following Intravenous Injection of Sugar. (Experimentelle Hyperglykämie beim Menschen durch intravenöse Zuckerinjektion.) S. J. Thannhauser and H. Pfitzer.
133 The Diastase Content of the Feces. H. Rotky.
134 *The Bile Pigments in the Fetus and Newly Born. (Icterus neonatorum und Gallenfarbstoffsekretion beim Fötus und Neugeborenen.) A. Ylppö.
135 Tests of Ovary Functioning. (Funktionsprüfungen der Ovarialtätigkeit.) R. Keller.
136 *Abderhalden's Test Applied to Gastro-Intestinal Tract. (Diagnose der Magendarmaffektionen mit Hilfe des Abderhaldenschen Dialysierverfahrens.) B. T. Kabanow.
137 *Stimulation of Plant and Animal Growth by the Roentgen Rays. (Der Wachstumsreiz der Röntgenstrahlen auf pflanzliches und tierisches Gewebe.) E. Schwarz.
138 *Improvised Superheated Air Apparatus. H. Schmerz.
139 *Psychical-Epileptic Equivalents. (Kurze Bemerkungen über Dämmerzustände.) A. Heidenhain.
140 The Antitryptic Action of the Blood-Serum. E. Rosenthal.
141 The Blood-Serum in Gout. R. Ehrmann and H. Wolf.
142 *Abderhalden's Test in Disease of the Thyroid. (Serologische Untersuchungen mit Hilfe des Abderhaldenschen Dialyseverfahrens bei Gesunden und Kranken. Spezifität der Abwehrfermente.) A. E. Lampé and R. Fuchs. Commenced in No. 38.
143 The Physician Must Learn not to Let Himself Be Imposed Upon by His Patients. (Die Hohe Schule für Aerzte und Kranke. Der Arzt als Dirne. Der Arzt als Sklave.) M. Nassauer.
144 Determination of the Blood-Pressure. (Blutdruck und Blutdruckmessung.) L. Sauthoff.

134. **Jaundice in the New-Born.**—Ylppö has worked out a method for studying the secretion of bile pigments in the fetus, etc., and states that the fetal liver allows bile pigments to pass into the blood. Icterus neonatorum is consequently a physiologic and uniform phenomenon, although at times it may reach a pathologic intensity.

136. **The Abderhalden Test in Diagnosis of Gastro-Intestinal Trouble.**—Kabanow states that he has applied the test with preparations made from various portions of the gastro-intestinal tract, portions which seem to be physiologically and anatomically independent of each other. He thus applied the test with preparations made separately from the fundus, the pylorus, the duodenum, small intestine, large intestine and appendix, and tabulates the details of sixteen cases. It is remarkable to note the positive reaction to the special organ tissue involved, and the lack of any reaction in presumably purely nervous affections. One table reports the findings in four cases of pernicious anemia; the reaction was positive to stomach and small intestine tissue in one case; to the latter alone in two others, and there was no reaction in the case of a patient who had entirely recovered from the anemia. The only contradictory finding was in a case of acute gastritis. The test was applied the third day and there was no reaction, evidently because the ferments had not yet had time to appear in the blood.

137. **Influence of Roentgen Rays on Growth of Plant and Animal Tissue.**—Schwarz reviews what has been done in this line to date, and gives an illustrated description of his own positive research with green beans exposed to the Roentgen rays from half a minute to five minutes and then planted. He aimed to keep the exposure at the lowest possible dosage to obtain an influence on growth. The results were so strikingly positive that he applied the same technic to granulating wounds, covering half the wound with a sheet of lead and exposing the other half at three or five day intervals to a soft tube of about 2 DMa for about five minutes at a distance of 30 cm. Similar experiments with the ears of rabbits confirmed the stimulating influence of the Roentgen rays on tissue growth.

138. **Improvised Apparatus for Superheated Air.**—Schmerz makes a cylinder or tunnel of chicken wire-fencing and winds it with a plaster bandage, coating it thick on both sides with plaster. He makes an inner screen in the same way, and introduces into the appliance a small stove-pipe. The same principle can be applied with cement. The apparatus thus made answers every purpose for the application of superheated air.

139. **Treatment and Prevention of Psychical Equivalents of Epilepsy.**—Heidenhain is convinced that the chief factor is a nervous contraction of the blood-vessels in certain parts of the brain. This can be combated by inhaling amyl nitrite, and he advises that persons inclined to epilepsy should carry constantly a small bottle of amyl nitrite on their persons

and at the first sign of trouble inhale a few drops poured into a cup or glass. The family might also be instructed to administer the amyl nitrite if the individual himself is not able to do it. Heidenhain has had two patients whom he was able to bring out of the recurring epileptic condition of imperfect perception and understanding (*Dämmerzustände*) by repeated inhalation of amyl nitrite. Migraine is also frequently amenable to inhalation of amyl nitrite as this, too, is traceable to cramp of the vessels in the brain. He says that amyl nitrite is so simple and harmless that epileptics should be encouraged to use it more, even between attacks.

142. **Abderhalden's Test in Disease of the Thyroid.**—Lampé and Fuchs applied this test in sixty cases of abnormal thyroid functioning and they found that serum from patients with exophthalmic goiter or basedowoid induced a constant positive reaction with tissue from the thyroid of a person with exophthalmic goiter. In a few instances their serum digested also thymus and ovary or testicle tissue. The serum of the myxedematous had likewise the power to disintegrate ordinary thyroid tissue. This was also the case with serum from patients with endemic goiter. The ferments elaborated in these conditions seem to be specific to an extreme degree.

Petersburger medizinische Zeitschrift

September 28, XXXVIII, No. 18, pp. 215-226

145 Tuberculin Therapy by Koch-Petruschky Technic. P. Bergengrün.
146 Relations Between Indol and Indican in the Urine. W. v. Moraczewski.

Wiener klinische Wochenschrift

October 2, XXVI, No. 40, pp. 1601-1644

147 Chlorosis and the Heart. (Ueber Anämien. II.) E. v. Neusser.
148 *Hemolysis with Congestion of the Spleen. (Hypersplenische Hämophthisen und Stauungsmilz.) B. O. Pribram.
149 *Differentiation of Diphtheria and Pseudodiphtheria Bacilli. Markl and F. Pollak.
150 Living Spirochetes in Progressive Paralysis. H. Geber and L. Benedek.
151 *Syndrome from Functional Adrenal Insufficiency. (Bradykardie, Hypotonie, niedere Körpertemperatur, eigenartige Muskelschwäche, Neigung zu Ohnmachten.) E. Hoke.

148. **Hemolytic Anemia from Congestion in the Spleen.**—Pribram reports extensive research on dogs which showed that urobilinuria could be readily induced by causing congestion in the spleen; the appearance of urobilin in the urine is the only sign known to date indicating abnormally increased destruction of blood-corpuscles. It proved impossible to induce the urobilinuria in other ways, not even by intravenous injection of substances known to be directly destructive to the blood. Further experiments showed that stasis in the inferior vena cava, such as occurs with uncompensated valvular lesions, leads to urobilinuria to an intense degree. He has never encountered a clinical case of isolated stasis in the spleen with exaggerated destruction of red corpuscles and consecutive anemia and urobilinuria, but a number of such cases have been described in the literature. All the patients had varicose enlargement of the splenic vein and its branches and their course was extremely tortuous; sometimes the vein was kinked and actual varicose tumors developed in the hilus of the spleen. The spleen was always much enlarged but generally there were no other pathologic findings except possibly slight cirrhosis of the liver, but all the patients showed signs of abnormal destruction of blood, anemia and urobilinuria. The most remarkable feature in the cases is that the patients are young and the vascular apparatus elsewhere seems normal. Pribram thinks that this syndrome of varices in the splenic vein with extreme congestion in the spleen and destruction of the reds must be regarded as a special affection *sui generis*. He regards the sclerosis and varicose enlargement of the vein as the primary trouble, and suggests that this peculiar pathologic condition of the veins in this region may be traced to an infectious process in the umbilicus in the first weeks of life. There was a history of such a process in two of Türck's patients. Several of the cases on record were in children. There is also the possibility of injury from toxic products formed in the intestines which are liable to act most intensely on the nearest veins, namely, the portal system; Stahl used to say "the portal vein is the portal of ills."

149. **Diphtheria Bacilli-Carriers.**—Markl and Pollak report from Trieste that they found extremely virulent diphtheria bacilli in the nasopharyngeal secretions of four out of ninety-one healthy persons examined free from known contact with diphtheria. In six other cases bacilli were found which apparently could be distinguished from true diphtheria bacilli only by their lack of virulence. The tellurium plate proved most reliable for cultivating the bacilli, but they state that none of the usual morphologic differential criteria are absolutely dependable.

151. **Asthenia from Functional Insufficiency of the Adrenals.**—Hoke reports a case which, he says, belongs in the same category with the cases of a peculiar state of asthenia of short duration reported by Riesman in THE JOURNAL, 1912, lviii, 1846. His patient was a woman of 32 who had never been quite healthy since a severe diphtheria at 14. She tired easily and had palpitations, dizziness and sudden syncope on slight exertion. At 28 she passed through a normal pregnancy. Hoke was called to her as she was said to have fainted. He found the skin pallid and clammy, the pulse scarcely perceptible; the heart rate 52 but rhythmic; the heart sounds pure; the temperature in the mouth 35.8 C. The patient felt that she was dying. He injected 0.5 c.c. of 1 to 1.000 epinephrin solution, assuming that the trouble was an acute vascular paralysis. The effect was surprising; in fifteen minutes the symptoms had subsided, and the patient felt well and strong; pulse 62, and much stronger. She was then given a course of carbonated baths and now seems to be permanently improved; the myasthenia is much better, the pulse up to 72, and the blood-pressure up to 110.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXIV, No. 1, pp. 1-450. W. A. Freund Festschrift. Last indexed September 13, p. 909

152 Artificial Rupture of the Fetal Membranes before and after Dilatation of the Os Uteri. (Ueber Blasensprung und Blasenstich und über die Strikturen der Cervix.) H. Bayer.
153 Abortions in Connection with the Declining Birth-Rate. (Der Geburtenrückgang und seine Beziehung zum künstlichen Abort und zur Sterilisierung.) H. Fehling.
154 Etiology of Uterine Myomas. H. Freund.
155 Forceps in the Home. (Ueber Zangenanwendung in der Privatpraxis.) H. Fleurent.
156 Ovulation, Conception and Duration of Pregnancy. L. Fraenkel.
157 *Serotherapy in Pregnancy Intoxication. R. Freund.
158 Diverticulum in Urethra. (Harnröhrendivertikel.) F. Fromme.
159 *Precancerous Affections. D. v. Hansemann.
160 Constitution and Disease. C. Hart.
161 Movable Colon and Ileocecal Tuberculosis. E. Holländer.
162 Complete Knot in Umbilical Cord. (Tod des Kindes durch einen wahren Nabelschnurknoten.) K. Holzapfel.
163 Tubal Sterilization. K. Holzapfel.
164 Freund's Operation for Total Prolapse of Uterus and Vagina. J. Klein.
165 Reflex Action in Head and Eyes on Turning the Head of the Newly Born. (Entwicklung des Drehreflexes am Neugeborenen.) H. Kraft.
166 Physical Measures in Gynecology. A. Laqueur.
167 Disease of the Cecum and Large Intestine. (Die chronische Blinddarm- und Dickdarmentzündung.) G. Lindemann.
168 *Postoperative Disturbances. (Zur Beurteilung postoperativer Beschwerden nach Laparotomien.) J. Linkenheld.
169 Treatment of Injury of the Ureter, and Neck of the Bladder. (Zur Behandlung hoher Harnleiterverletzungen, Defekten und Verletzungen des Blasenhalses und des Sphincter urethrae.) A. Mackenrodt.
170 Inflammation as Cause of Development of Aberrant Decidua or Paradecidua. R. Meyer.
171 Differentiation of Abdominal Tumors. R. Müllerheim.
172 Symptomatology of Vesicovaginal Fistulas. (Blasen-Scheidenfisteln.) M. Muret.
173 Causes of Periodical and Alternating Swelling of the Ovaries. E. Ries (Chicago).
174 Cancer of the Pregnant Uterus. * (Verhalten der regionären Lymphdrüsen und des Ureters beim Carcinoma colli uteri in graviditate.) W. Rühle.
175 Influence of the Ovaries on the Growth of the Mammary Gland. (Zur Lehre der inneren Sekretion.) G. Schickele.
176 *Influence of Castration on the Growth of the Bones after Sexual Maturity. (Einfluss der Kastration auf das Knochenwachstum des geschlechtsreifen Organismus, und Gedanken über die Beziehungen der Kastration zur Osteomalacie.) H. Sellheim.
177 Suture of Trunk Veins during a Laparotomy. (Naht der grossen Beckengefässe bei der abdominalen Radikaloperation.) W. Sigwart.
178 Fibromas in Round Ligaments. (Zur Kasuistik der primären desmoiden Tumoren des Ligamentum rotundum.) K. Steiöl.

179 Infantilism. R. v. d. Velden.
180 Toxicity of the Urine with Anaphylaxis. (Harngiftigkeit bei Anaphylaxie.) A. Zinsser.
181 Internal Secretion of the Salivary Glands and their Relations with the Genital Organs. L. Mohr.
182 Kidney Functioning during Pregnancy. K. Eckelt.

157. **Serotherapy in Pregnancy Intoxication.**—Freund gives the details of the cases of pregnancy dermatitis on record, and describes three from his own experience in all of which serum therapy was applied; also several cases of hyperemesis, and three cases each from the literature and from his own experience in which serotherapy was applied in eclampsia. He then records similarly the experience to date with normal horse serum applied in pregnancy dermatitis, uncontrollable vomiting and eclampsia, and further similar records of cases in which Ringer's solution was applied. The latter group includes nine dermatitis cases from his own experience, and two of hyperemesis. The total material is classified for comparison of the effects of these various forms of serotherapy. The most favorable results were obtained in pregnancy dermatitis; thirteen patients were cured with serum from pregnant women, four with horse serum, and fourteen with Ringer's solution. In only one case of pregnancy dermatitis was no benefit derived. No effect was apparent also in two of the ten cases of uncontrollable vomiting. Two patients died of the twelve with eclampsia given serotherapy; the others recovered. The practical conclusions from the above figures are emphatically in favor of treating all patients with pregnancy dermatitis or uncontrollable vomiting by subcutaneous infusion of 200 c.c. of Ringer's or Locke's solution, repeating the infusion two or three times at need. If this fails, a subcutaneous or intravenous infusion of 20 c.c. of horse or human serum should be given. Whether serotherapy should be applied in eclampsia is still an open question, as the course of eclampsia is so exceptionally acute; but the results observed to date justify its tentative use.

Freund traces the history of serotherapy, remarking in conclusion that the favorable practical results obtained in the toxic conditions for which a pregnancy is responsible, are the outcome of long years of research based on the placenta theory. This led to the discovery of the binding of the toxic substances in the placenta by fresh serum. Then followed the era of serotherapy of toxicoses, and this in turn has yielded to the treatment of toxicoses by solutions of salts resembling serum in their composition. This is much simpler and more convenient than serum itself. It is possible, he adds, that administration of calcium and potassium salts might be useful during a pregnancy for prophylaxis of toxic conditions. The formula he prefers for the Ringer's solution is 7.5 parts sodium chlorid; 0.1 part potassium chlorid; 0.2 part calcium chlorid and distilled water to 1,000 parts. Seventeen of the total forty-nine cases analyzed are from his own experience at the Berlin Charité hospital.

159. **Factors Predisposing to Cancer.**—Hansemann emphasizes that it is possible to steer clear of many forms of injury, which are liable to become subject later to cancerous degeneration. Other injuries cause lesions which can be excised in time. In still others the primary injury is not known, and this gap in our knowledge can be filled only by long years of observation of patients developing cancer later, and hence science can look for the solution of these problems only to the family physician or to physicians making a study of their own bodies, and keeping a record of all injuries, etc.

Of the precancer affections, he regards pigmented xeroderma as the most typical as this is familial, indicating a congenital predisposition, and malignant degeneration may occur even in children. Sunlight here is the irritant involved, but once the affection is installed, artificial light may suffice for the irritant. He thinks that a number of other skin affections belong in this predisposing-to-cancer category. Leg ulcer is an example of an acquired predisposition; when such an ulcer has persisted for years, it is often possible to discover cancerous degeneration at some point; this occurs far more frequently than is generally recognized. The greater the predisposition, the less irritation is required to elicit cancer growth. Only very rarely is the predisposition so great that the irritation causes the cancer to develop in a short time; decades are required for this, as a rule, and this explains why cancer is most frequent between 40 and 60. Those who escape to 60, show that they have no predisposition. The successful excision of cancer testifies further that the predisposition is local. Aberrant embryonal tissue seems to be especially dangerous; Hansemann has never known of an instance of malignant degeneration of an ordinary wart on the skin or in the larynx. The warts, etc., that turn into cancers are always congenital.

He insists that more attention should be paid from the standpoint of prophylaxis of cancer to hemorrhoids and fistulas, to constipation as a source of irritation of the large intestine liable to lead to cancer, irritation of the esophagus from peppery food and strong liquors, and irritation of the stomach from burning hot food. He states that the stomach mucosa does not feel heat and consequently when one takes an overhot mouthful and swallows it quickly, no further discomfort is felt from it, and yet the stomach mucosa is injured more readily by hot substances than the mucosa lining the mouth and esophagus. This is particularly liable to be the case if the extra hot mouthful happens to be meat or potato; this holds the heat at one point and it is not spread as in case of a hot fluid. The hot chunk lying at one point is almost certain to injure the mucosa seriously and there can be no doubt that this has contributed to ulcer in the stomach in certain cases.

168. **Postoperative Disturbances.**—Linkenkeld warns that it is necessary to ascertain whether there are not metastasic nodules in the peritoneum, too small to be palpated and yet showing the hopelessness of any operation. This is particularly to be guarded against with cancer in the kidney or rectum, and he advises an exploratory laparotomy. In two such cases he found the peritoneum studded with metastases and realized the inoperability of the growth which nothing else had indicated. He thinks that adhesions have been regarded too seriously in the past; trouble need not be anticipated from them as a rule, except when they are liable to bind some part of the stomach or intestines or drag the mesentery.

The whole secret of avoiding postoperative disturbances, he reiterates, is in correct diagnosis and operating only when absolutely necessary. The simultaneous occurrence of two or more surgical affections is often perplexing: in one such case he found epigastric hernia, empyema of the gall-bladder and ulcerative appendicitis. In another, empyema of the gall-bladder with kidney-stone colic; one woman with gonorrheal salpingitis and recurring appendicitis was treated by appendectomy alone, and the gynecologic affection healed spontaneously. He warns further that certain pains cannot be referred to certain pathologic conditions found, as, for example, intense pain in the sacral plexus cannot be explained by retroversion of the uterus.

Pain from inflammation of an abdominal organ does not let up during sleep; it is increased by movements; the organ feels warmer than usual, the arteries pulsating more actively; the sensitiveness of the abdominal wall to pressure is diffuse, and the sensitiveness increases as the pressure is relaxed. With hyperesthesia, there is not this diffuse character of the sensitiveness; the tender points characteristic of neuralgia can be detected; the pains are intermittent and do not disturb the sleep and they are not exaggerated by movements but can be modified by emotions, especially pleasurable ones, and by diverting the attention. On palpation of the internal genitals the patient jumps but if the internal genitals were actually inflamed proportional to this extreme tenderness, the patient would not be well enough to come to the office.

He mentions also that lumbago and spondylitis are often erroneously diagnosed as perimetritis. Intermittent, labor-like pains indicate that a hollow organ is trying to expel something through a narrow portion of the organ. A tuberculous ileocecal tumor often proves misleading in this way; if large enough to be palpated it is assumed to be a genital tumor. He diagnosed a tuberculous ileocecal tumor in a woman with intense intermittent pains in the cecal region and a palpable tumor during the attacks, but the trouble proved to be spasms of tabetic origin. Intermittent pains are

also liable in case of sclerosis of the mesenteric vessels; the picture is similar to that of intermittent claudication. These cases are often wildly misleading.

He adds that the sudden cessation of stormy labor-pains is a sign that the uterus has ruptured, and the subsidence of the intense pains with a ruptured tubal pregnancy is a sign that the hemorrhage has been arrested. Tenderness at the three typical painful points of the ileo-inguinal nerve is frequently a sign of coitus interruptus; the uterus and adnexa are generally tender on palpation and there is usually some discharge from the uterus. In conclusion, Linkenkeld remarks that it does not redound to the credit of the profession when the lay public recognize fashions in medicine, saying, for example, "Nowadays everything is ascribed to appendicitis."

176. **Influence of Castration on the Growth of the Bones.**—Sellheim has continued his research in this line and here gives an illustrated description of experiments with the male of the deer in which the effect of castration on the growth of the branching horns could be instructively studied. The facts observed suggest that osteomalacia may be regarded as a pathologic exaggeration of a natural physiologic process in pregnancy. It aims to supply the needs of the fetus while sparing the mother's bone system. Rachitis must also be regarded from the same point of view. Castration arrests the exaggerated ovarian functioning, and in rachitis the aim should be to over-dominate the injurious internal secretion by supplying artificially the antagonist secretion, which, in this case, he thinks, is the hypophysis secretion. Two articles have been published recently advocating the use of hypophysis extract in treatment of rachitis (Klotz and Weiss).

Zeitschrift für Urologie, Berlin

October, VII, No. 10, pp. 785-864

183 Urology as Science and as Course in Medicine. L. Casper.
184 *Production of Urinary Calculi and Sediment. (Bildung der Harnsteine.) C. Posner and L. Lichtwitz.
185 Total Inefficacy of Balsamics in Treatment of Gonorrhea. M. Roth.

184. **The Colloids in the Urine as Factor in Production of Calculi.**—Posner remarks that courses of mineral waters dilute the urine and thus counteract the concrement-producing action of the colloids in the urine. They are also liable to modify the crystal-producing property of the urine and, by promoting diuresis, to wash out sediment.

Lichtwitz incriminates likewise the colloids and states that therapeutics must aim to provide protecting elements in the urine, such as gelatin, or give salts to enhance the solubility of the colloids.

Zentralblatt für Chirurgie, Leipsic

October 4, XL, No. 40, pp. 1545-1584

186 Technic for Occlusion of the Pylorus. (Zur Technik des Pylorusverschlusses.) G. Mertens. (Zur Pylorusexklusion.) E. Bircher.

Zentralblatt für Gynäkologie, Leipsic

October 4, XXXVII, No. 40, pp. 1469-1500

187 *Raising the Pelvis as Aid in Correction of Retroflexion of the Uterus. (Beckenhochlagerung bei Reposition des retroflektierten Uterus.) Liebl.

187. **Raising the Pelvis in Reducing Retroflexed Uterus.**—Liebl states that in two recent cases the women were pregnant and by raising the pelvis the retroflexed uterus slid down into normal position in one case with scarcely any need for assistance on his part. General anesthesia is not required.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 30, XXXIV, No. 117, pp. 1223-1230

188 Diphtheria and the General Practitioner. R. Persico.

October 2, No. 118, pp. 1231-1238

189 *Roentgenotherapy in Myeloid Leukemia. M. Gioseffi.

189. **Roentgenotherapy in Myeloid Leukemia.**—The case reported showed the typical course under roentgenotherapy; marked improvement at first in both the blood picture and the general health, but then return of the severe symptoms. They subsided anew under repetition of the Roentgen-ray exposures, but Gioseffi is anticipating any day to have the symptoms return as roentgenotherapy does not seem to arrest the actual cause of the disease although it has kept this patient thus in good condition for a few months. The spleen alone was exposed to the rays three and four times in the course of one and three weeks at the two courses of treatment with two months' interval. The patient is an x-para of 58.

Policlinico, Rome

September 28, XX. No. 39, pp. 1397-1432

190 Foci of Localization of Malaria. (Sulla localizzazione della malaria nelle abitazioni.) B. Gosio.

October, Surgical Section No. 10, pp. 433-480

191 Incarcerated Femoral Hernia of the Fallopian Tube. (Ernia crurale strozzata della tromba uterina con sindrome d'ileo paralitico.) I. Scalone.
192 Wounds of the Heart. (Sulle ferite del cuore.) N. Leotta. Commenced in No. 7.
193 Suprapubic Prostatectomy. G. Dialti.
194 The Lower End of the Dura Mater. (Topografia del sinus terminalis della dura madre spinale con considerazioni chirurgiche.) R. Casali.
195 Fascia Grafts to Close Blood-Vessel. (Plastiche vasali con lembi liberi di aponevrosi.) A. Chiasserini.

Riforma Medica, Naples

September 27, XXIX, No. 39, pp. 1065-1092

196 Metabolism in Animals Castrated at Birth. (Ricambio respiratorio e ricambio materiale in animali castrati dalla nascita.) De Vita Damiano.
197 The Luetin Skin Test in Syphilis. (Esperienze con la luetina di Noguchi.) G. Gavini. Commenced in No. 36.

Brazil-Medico, Pi[illegible] de Janeiro

September 15, XXVI *366-377*

198 Transmission of Surra by In[illegible]nchuca—Triatoma infestans Kl[illegible] cadeirus.) A. Neiva.
199 Roentgenoscopy in Diagnosis of Incipient Pulmonary Tuberculosis in Adults. T. Dodsworth.

Hygiea, Stockholm

August, LXXV, No. 8, pp. 721-848

200 *Local Diagnosis of Spinal Cord Tumors. (Ryggmärgstumörer.) G. Söderbergh.
201 Present Status of Cancer Research. (Den komparativa och experimentella kräftforskningens problem.) L. Wolff.

200. **Local Diagnosis of Spinal Cord Tumors.**—Söderbergh analyzes a few cases from his own experience with diagrams showing the significance of the findings. In one case there were three tumors in the spinal cord; the findings in this and the other cases indicate, he thinks, that the seventh dorsal nerve innervates the upper part of the external abdominal oblique; the eighth and ninth dorsal nerves the transverse or transverse plus external and internal oblique muscles, while the tenth innervates mainly the internal oblique. In the above case the abdominal wall was almost as hard as with a newly perforated gastric ulcer. The cramps subsided only for a few minutes at a time, but the pain had paroxysmal exacerbations. No abdominal reflexes could be elicited. During coughing the abdominal wall was drawn up in the epigastrium a little to the right, while below the umbilicus the position was unmodified. Electric tests showed reduced irritability of the upper part of the left external oblique and the patient complained of pain in this region. Söderbergh accepted these slight findings as indicating a tumor at the left seventh dorsal root, compressing the spinal cord and responsible for the spastic paresis in the legs with recurring paroxysms of pain, the bladder disturbances and sensory symptoms corresponding to the tenth dorsal root. The operation revealed a psammoma 22x10 mm. at the seventh dorsal nerve. Improvement followed its removal but the paroxysms of pain returned later and during them the umbilicus was drawn up to the left. As the cramp relaxed, the umbilicus did not return to normal condition but moved up toward the right, and if the patient coughed this displacement became more noticeable. A second operation revealed a second tumor, compressing the twelfth dorsal segment and a third operation became necessary for still another tumor. The patient was a woman of 48. In another case the tumor was in the upper cervical region and had grown into the dura. In the two other successful cases the tumor was also in the upper cervical region in one and in the cauda in the other. All were thus rare types. A diagram and table give other instructive data.